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Technical Report No. 370

MILITARY RETIREMENT: THE ROLE OF  
YOUTH AND VIGOR, VOLUME I

by

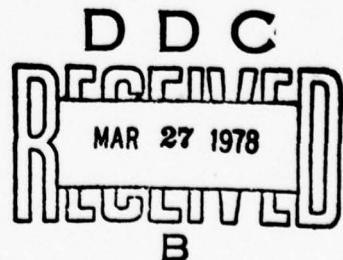
R. A. Holmes, T. C. Hillsman,  
E. M. Small and R. B. Borthwick

15 February 1978

Prepared for  
The President's Commission on Military Compensation  
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P R E S E A R C H I N C O R P O R A T E D

ABSTRACT

This study examines the issue of youth and vigor as it impacts on the military retirement system. Particular emphasis is given to the period from 1900 to the present time. The study analyzes the legislative actions that have occurred since the establishment of a permanent U.S. military organization and notes the absence of any generally accepted definition of youth and vigor and the absence of usable data prior to the World War II era. The legislative history of military retirement is analyzed with special emphasis on the force management objectives which potentially acted as the causative agents for the legislation. This study was performed for the President's Commission on Military Compensation under Contract MDA903-78-C-0177.

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SUMMARY

GENERAL

1. This report addresses certain issues associated with the relationship between military retirement policy and legislation and youth and vigor in the Armed Forces. The availability of historical data pertinent to youth and vigor is analyzed and the correlation between retirement legislation and force management objectives discussed.
2. The average age of the nondisability retirees generated by the current military retirement system ranges from about 40 to 44 yr for enlisted personnel to about 45 to 49 yr for officers. Coupled with the closed nature of the military personnel system, the early retirement ages result in a young force, with the average age of an officer approximately 33 yr and that of an enlisted man or woman about 25 yr.
3. The relatively low average age of active military personnel has evolved into a "requirement," and the military retirement system is perceived as an instrument that, in part, contributes to meeting this requirement. However, there are a number of questions concerning the credibility of the "youth and vigor requirement." Given that "youth and vigor" is a bona fide need, questions arise concerning the adequacy of the present system in meeting future personnel needs. These questions range from the definition of "youth and vigor" and how it manifests itself in the military environment to how the current military retirement system sustains the required/desired levels within the active forces.
4. This report focuses on the extent to which youth and vigor has been a factor in military retirement legislation and the utility of the current retirement system in managing the youth and vigor levels of the Armed Forces. In view of this relatively narrow scope, the report should not be interpreted as an attempt to advocate any change to the present military retirement or compensation systems. Such changes must be given proper consideration in light of the full complexities of the issues associated with the need for the compensation and retirement systems to provide sufficient flexibility to military managers while being socially acceptable and economically feasible.

## FINDINGS

5. The study encompassed several discrete (although not mutually exclusive) efforts. A brief description of each effort and the resultant findings are given below.

### Data Search

6. An effort was undertaken to locate data through which the historical and current definitions and levels of youth and vigor might be quantified and evaluated. Major libraries (e.g., Library of Congress, National Archives) as well as DoD, Army, Navy, Air Force, and Marine Corps officers were contacted and/or visited during the search. The findings were as follows:

- Historically, the meaning of youth and vigor has been addressed in nonquantifiable, subjective terms.
- No formal definition of youth and vigor has ever been stated.
- Quantifiable data relevant to youth and vigor have not accompanied military retirement legislation.
- Prior to 1948, useful data that could quantify youth and vigor were either not collected or not aggregated in a useful manner. In the 1948-1970 period, some data are available, with the latter portion of the period being more complete. From 1971, data are available on automated systems. However, the routinely produced aggregations do not fully describe all of the potentially usable parameters that could be employed in measuring youth and vigor. These parameters would include but not necessarily be limited to:
  - Age
  - Years of service (YOS) or experience
  - Pay grade
  - Time in pay grade or experience in grade
  - Promotion opportunity or promotability
  - Occupational or skill specialty.

Analysis of Legislation

7. Military retirement/severance legislation was analyzed relative to the changes in the total force size occurring at the time the legislation was passed. The findings were:

- Nondisability retirement legislation correlates with force management objectives other than those associated with youth and vigor. Specifically, reductions in force have been accompanied by legislation facilitating the reduction. Once the gross reduction has taken place, officer inventories have been adjusted through the use of "hump" legislation. Beyond the "hump" period, changes in the retirement system have been less significant and tend (until a new force level buildup commences) toward a less liberal system.
- During force level buildups, legislation has been required to remove (voluntarily or otherwise) certain officers/groups of officers. The need for such legislation, even though progressively more liberal voluntary retirement provisions and increasingly specific involuntary retirement provisions have been in effect, highlights the lack of flexibility that has historically restricted the management of the officer forces.
- Historically, the impetus for nondisability retirement legislation could be focused on a problem in the officer corps. The individual services have apparently coped with enlisted personnel by other means, probably administrative.

Recent Variations in Youth and Vigor Descriptors

8. Recent variations in youth and vigor descriptors were analyzed. Descriptors reviewed included age of force members, age by pay grade, experience, and experience by pay grade. In general, the data reviewed were obtained from the DoD Actuary and covered (at most) the years 1949 to the present. Almost all data were available in an aggregated form for all years. The major finding was that during the past 25 yr, significant variations have occurred in the percentage of the force over age 40, the average age and years of experience by pay grade and other descriptors.

## CONCLUSIONS AND RECOMMENDATIONS

9. The study's conclusions are as follows:

- Neither the present military retirement system nor any specific change to it can be supported or opposed solely on the basis of a youth and vigor argument.
- The relative importance of the need for youth and vigor as a factor in historical changes to the military retirement system cannot be formally quantified. Many of the effects of the changes (e.g., accommodating the removal, voluntarily or otherwise, of military personnel from active duty) may be addressed in terms of broader management objectives, such as control of the total size of the force.
- The assertion that the current military retirement system "works" is supportable in the sense that the system, together with the rest of the military compensation package, has conceivably (although not necessarily demonstrably) limited fluctuations in certain youth and vigor parameters. This is arguably a "self-fulfilling prophecy" effect.
- The present military retirement and compensation systems have not "worked" in the sense that:
  - Significant fluctuations in youth and vigor descriptors have occurred
  - "Hump" legislation has been required
  - Pertinent trends in the occupational composition of the force and in morbidity parameters have not been reflected in the systems.
  - The system has not been immune from economic and social attack.
- The ability of the current military compensation and retirement systems to eliminate the need for a "housecleaning" of the officer corps coincident with a full mobilization has

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not been tested. There is, however, the potential that such an action will be required/desired should full mobilization occur.

10. The study recommends that additional flexibility be incorporated into the military retirement and compensation package to:

- Accommodate the removal of officers prior to the mandatory retirement point
- Accommodate the extension on active duty of officers who should be continued past the mandatory service in grade points notwithstanding the fact that they will not be promoted.

The manner in which officers who fall into one of the above categories should be identified and the means by which their removal or continuation should be effected should be the subject of further study.

11. It should be anticipated that youth and vigor will continue to be an issue relative to force management objectives and associated retirement and compensation provisions. Accordingly, it is recommended that further study of youth and vigor be undertaken with the objectives of:

- Developing a serviceable definition of youth and vigor
- Developing methodologies to quantify youth and vigor levels and requirements
- Determining and evaluating the potential impact on youth and vigor levels and requirements of factors such as demographic changes in the population of the U.S. and the ability to recruit and retain individuals with the desired/required characteristics
- Addressing youth and vigor as one of a number of interrelated management objectives and not as an isolated issue.

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I. INTRODUCTION

1.1 This report analyzes the role youth and vigor requirements have played in the evolution of the current military retirement system. The objective is to provide insight into the significance and credibility of that role so that it may be treated in the proper context during current or future reviews of the military compensation system. The research effort devoted to the collection of data through which the present and historical levels of youth and vigor might be formally defined and quantified is described and documented. The analyses performed relative to the identification of the causative agents associated with the legislation governing military nondisability retirement and severance are described, and certain aspects of the social, political, economic, and management factors impacting on military retirement policies and procedures are addressed. The work was performed for the President's Commission on Military Compensation under Contract MDA 903-78-C-0177.

BACKGROUND

1.2 The current military retirement system provides active duty military personnel with the option to voluntarily retire with as little as 20 yr of active military service. The result has been a nondisability retirement age averaging in the low 40s for enlisted personnel and mid- to upper-40s for officers.<sup>1/</sup>

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<sup>1/</sup> OASD (M&RA) Actuarial Consultant, Average Age at Retirement for Military Personnel Receiving Retired Pay on June 30, 1972, by Fiscal Year of Retirement (1,673), 20 September 1973.

These retirement ages are young compared with the average federal civil service retiree (nondisability) age of over 60 yr. <sup>2/</sup> Both the voluntary and mandatory aspects of the present military retirement system combine to produce a relatively young military force. For example, in 1975, the average age of the U.S. enlisted person was 25 yr and the officer was 33 yr. <sup>3/</sup>

1.3 The youthful nature of the military force has on occasion been addressed in terms of the "requirement" for such a characteristic. The appendices to the Report of the First Quadrennial Review of Military Compensation contain a statement typical of those found in reference to such a "requirement:" <sup>4/</sup>

For the vast majority of its 'employees' the military organization requires retirement at a relatively young age. The basis for this requirement is an emphasis on the maintenance of a young and vigorous military force capable of performing vital defense and combat missions. As a result of prior experience wherein promotion stagnation and superannuation of personnel led to military forces with less than the desired efficiency and capabilities, the need for such an emphasis is well established and generally recognized.

<sup>2/</sup> OASD (M&RA) Actuarial Consultant, Number of New Retirements Under the Civil Service Retirement Act in FY 1970 by Age, Sex and Type of Retirement (Excludes Deferred Annuitants) (1,492), 27 January 1972.

<sup>3/</sup> OASD (M&RA) Actuary, Number of Military Personnel on Active Duty, June 30, 1975, by Pay Grade and Age, (1,989) V.4-K-R, 10 May 1976.

<sup>4/</sup> Department of Defense, Modernizing Military Pay: Report of the First Quadrennial Review of Military Compensation, Volume V, The Military Estate Program (Appendices), Appendix III, pp. III-4, 5, 15 January 1969.

1.4 Additional references to the requirement for youth and vigor (particularly those statement offered in support of military retirement legislation) will be found throughout this report. This particular reference, however, contains the essence of the rationale generally associated with youth and vigor arguments. The statement also allows one to question the pros and cons of source aspects of the military retirement system and, in particular, the youth and vigor overtones associated with it. Specifically, the following questions may be asked:

- a. What are/should be the definition and quantification methodologies applicable to the youth and vigor levels of the military forces?
- b. Is there, in fact, a requirement (or set of requirements) for youth and vigor in the military force? If so, how are/can these requirements be stated? Do they vary among subsets of the force (e.g., officer/enlisted, occupational group, pay grade group, etc.)? Do they or should they reflect factors such as technological, sociological or demographic trends, or differences between peacetime and wartime postures?
- c. Can or should youth and vigor requirements be addressed independently of other force management objectives (e.g., those associated with either specific objectives such as promotion flow or skill distributions or those targeted at broader objectives such as total force size)?
- d. To what degree has the need for youth and vigor alone been a factor in the evolution

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of the military retirement system? If a historical justification for youth and vigor exists, is the current retirement system "working" in the sense that historical problems have not or will not reoccur?

PURPOSE AND SCOPE

1.5 This report does not profess to comprehensively address all of the above questions. In addition, although our findings are stated and conclusions reached on the basis of the findings offered, neither any specific statement in this report nor the report as a whole should be construed as advocating any change to the present military compensation system. Proper consideration of such changes must be made in light of the need for the military compensation system to provide sufficient flexibility to military managers while simultaneously being socially acceptable, economically feasible and politically palatable. The complexities of these issues strongly mitigates against action based solely on an analysis of a single management objective such as youth and vigor.

1.6 The primary focus of this study is on the questions listed in Paragraph 1.4d. above. Although the other questions shown are addressed in a limited sense, the absence of historical data, the short time frame available to accomplish the work and the involved interrelationships among youth and vigor and other management ends have necessitated that this effort be confined to those issues which can realistically be presented for the Commission's use in consideration of the military compensation problem.

CONTENTS

1.7 The following sections contain a full description of the work accomplished. Section II introduces the need for data to objectively evaluate youth and vigor, describes the search undertaken to locate such data, states the results of the search and details the implications of the results. Section III describes the analyses performed concerning the history of retirement legislation and the findings relative to the youth and vigor issue. In Section IV, recent variations in youth and vigor descriptors are displayed and analyzed. Section V contains the conclusions and recommendations.

1.8 The appendices contain background material and describe peripheral analyses performed. Appendix A is a reprint of a DoD Actuary table summarizing significant retirement legislation. Appendix B contains supplementary figures and tables. In Appendix C the reasons why certain recommendations of the Hook Commission were not incorporated into the Career Compensation Act of 1949 are addressed. Appendix D focuses on the issue of a retirement system which differentiates among age and occupational groups, specifically combat/other occupations. The historical presence of "grandfather clauses" in military retirement legislation is discussed in Appendix E, and the provisions of reserve retirement legislation are analyzed in Appendix F. The Bibliography contains a list of the major references reviewed during this study.

II. DATA SEARCH

2.1 In this section the questions of appropriate definitions and possible descriptors of youth and vigor as they relate to the military force are addressed. Such questions logically led to a search for data through which the historical and current levels of youth and vigor might be observed and evaluated. The approach used in the data search, the results of the search and the implications of the results are described in this section.

NEED .

2.2 In a sense, the requirement that the military force be youthful and vigorous may be considered as intuitively obvious. One must concede, for example, that a nonyouthful force (with an average age, for example, of 90) totally devoid of "vigor" would be intolerable. On the other hand, there appears to be no precedent for attempting to construct a force with an average age of 12, with each member required to possess the "vigor" of an Olympic decathlon champion. There are then, intuitive bounds to the perceived requirement for youth and vigor in the armed forces. The problem, then, is to address potential or actual definitions and levels of youth and vigor which fall within these intuitive bounds. At the outset one must appreciate the fact that intuition itself will be insufficient to address the issues. It is not intuitively obvious that the youth and vigor level "required" of an officer in pay grade 0-3 is significantly different from that "required" of an officer in pay grade 0-4. Neither is it

intuitively obvious that the youth and vigor level of a 33-yr-old is different from that of a 31-yr-old or 35-yr-old. Competitive sports are an example. Most professional football players are retired (voluntarily or involuntarily) from playing status in their mid-30s. On the other hand, few Olympic shooters (rifle, pistol, skeet, and trap) achieve medal-winning stature prior to their 30s. This suggests that factors other than age--repeated physical contact, for example--quickly enter the youth and vigor argument.

#### Potential Definitions and Descriptors of Youth and Vigor

2.3 Two parallel efforts were undertaken to investigate potential definitions and descriptors of youth and vigor. First the history of military retirement was reviewed and analyzed to determine if a satisfactory set of definitions and descriptors existed either currently or previously. At the same time, the possibility of defining and describing youth and vigor based on a straightforward logical approach was investigated.

2.4 Historical Analysis. The historical analysis accomplished was focused on the potential youth and vigor implications of retirement legislation. Appendix A is a DoD Actuary document summarizing retirement legislation occurring prior to 1960. In addition, an update from 1960 to the present is provided. More comprehensive summaries and/or complete descriptions of military retirement legislation may be found in a number of the references listed in the Bibliography. The background papers to the report of the Third Quadrennial Review of Military Compensation <sup>1/</sup> provide particularly serviceable summaries.

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<sup>1/</sup> U.S. Department of Defense, Third Quadrennial Review of Military Compensation, Office of the Secretary of Defense, Military Compensation Background Papers: Compensation and Related Manpower Cost Items, Their Purpose and Legislative Background, U.S. Government Printing Office, Washington, D.C., August 1976.

2.5 Disability Legislation. An analysis of disability legislation reveals certain fundamental aspects of a youth and vigor rationale, as well as bringing to light a portion of the complexities of the issue. The key points are:

- a. Vigor connotations are strongly imbedded in disability legislation. Initially the focus was on the physical capability of an individual to properly perform his duties. In 1855 the reasons for incapacities were broadened to include mental and moral unfitness. In general, disability provisions have applied to incapacities which currently exist, are expected to continue to exist and in some manner interfere with the capability to properly perform duties of the office or grade currently held. There is an actual or implied burden of proof in the sense that the existence of a disability must be satisfactorily established. Until 1949 the severity of the disability was pertinent only in relationship to the establishment of the fact that a disability existed and would continue to exist. Since 1949 severity and expected duration of a disability have entered into both the separation from active duty and compensation aspects of the disability system.
- b. Social and economic connotations are present in conjunction with disability legislation. These connotations are:
  - Provable incapacitation warrants removal from active duty

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- Compensation for such removal is justified for those incapacitated as a result of war or national emergency
- Self-caused incapacitation warrants no compensation
- The amount and manner of compensation should be related to the duration of service
- Should the incapacitation no longer exist, payment should cease
- Except in time of war, the costs of and total number of individuals receiving disability payments must be controlled.

c. There are force management implications associated with the disability legislation. Specifically:

- Voluntary egress from active duty of incapacitated individuals cannot be guaranteed
- The "burden of proof" and "currently existing" aspects effectively prevent the use of the disability compensation system as a tool in addressing objectives other than the elimination of clearly incapacitated individuals.

2.6 In summary, the military disability system has historically been tied to a youth and vigor rationale in the sense that members who are and will remain (for more than a short

period of time) unfit to perform the duties of their office or grade are (voluntary or otherwise) removed from active duty. This practice appears to have been socially acceptable, as have provisions for compensating those so removed for reasons beyond their own control. From a management standpoint, the system accommodates the removal of "nonvigorous" individuals to the extent that lack of vigor equates to current, quantifiable disability (specifically physical disability).

#### Nondisability Legislation

2.7 The age, years of service, pay grade and other descriptors associated with voluntary and involuntary nondisability retirement statutory provisions for regular service members are listed in Tables 2.1 and 2.2. The key points are:

- a. The youth and vigor connotations of the voluntary and involuntary provisions are different.
  - Voluntary provisions have, in general, been based on years of service. Initially, Presidential approval was required prior to voluntary retirement. Officer and enlisted provisions have generally been different, with enlisted personnel (at least prior to 1935) able to retire voluntarily with 10 yr of service less than that required of officers. Among the services, officer provisions have varied (prior to 1948) by as much as 10 yr of service at any given time. The Navy, in particular, has on occasion linked age (e.g.,

TABLE 2.1  
VOLUNTARY NONDISABILITY RETIREMENT PROVISIONS

Year	Applies to	Provisions
1776-1860	None	
1861	Officers:	40 years of service (YOS) (all services) or 62 years of age (YOA) (Navy only); Presidential approval required
1870	Officers:	30 YOS (Army); Presidential approval required
1873	Officers:	40 YOS <u>and</u> 62 YOA (Navy); Presidential approval required
1882	Officers:	40 YOS (Army); severance pay for those resigning with under 40 YOS
1885	Enlisted:	30 YOS (Army/Marine Corps)
1889	Officers: Enlisted:	0-4 to O-6, no age or YOS requirement (Navy) 30 YOS <u>and</u> 50 YOA (Navy)
1906	Officers:	O-7 and above, 64 YOA or 1 yr in grade (Army)
1907	Enlisted:	30 YOS (all services)
1908	Officers:	30 YOS (Navy)
1916	Enlisted:	20 YOS or 16 YOS <u>and</u> eligible for honorable discharge (Navy/Marine Corps)
1925	Enlisted:	20 YOS (Navy/Marine Corps)
1935	Officers:	15 YOS (Army); O-2, 14 YOS; O-3, 21 YOS (Navy/Marine Corps)
1938	Officers:	20 YOS (Navy/Marine Corps)
1945	Enlisted:	20 YOS (Army)
1948	Officers:	20 YOS (Army)

TABLE 2.2  
INVOLUNTARY NONDISABILITY RETIREMENT PROVISIONS

Year	Applies to	Provisions
1800	Officers and Enlisted:	Convenience of the Government (COG) discharges; severance pay (Army)
1802	Officers:	COG, severance pay (Army)
1811	Enlisted:	COG, severance pay (Army) (used as a retention device)
1815	Officers:	COG, severance pay (Army)
1855	Officers:	Nonphysical disability (Navy)
1861	Officers:	45 years of service (YOS) or 62 years of age (YOA), Service Secretary Discretion (Navy)
1862	Officers:	Army/Marine Corps; same as 1861 Navy
1873	Officers:	45 YOS and 62 YOA, Service Secretary discretion (Navy)
1882	Officers:	64 YOA (Army)
1890	Officers:	Twice fail promotion, severance pay (Army)
1899	Officers:	Specified number of 0-3 to 0-6's if not enough voluntary retirements (Navy)
1916	Officers:	Nonselected 0-6, 56 YOA; 0-5, 50 YOA; 0-4, 45 YOA: any grade, 64 YOA (Navy)
1920	Officers:	Class "B" officers retired if over 10 YOS, discharged with severance pay if under 10 YOS (Army)
1922	Officers:	Reduction in commissioned strength, under 10 YOS discharged with severance pay, over 10 YOS retired (Army); non-Naval Academy officers exempt from age vs. grade limits (0-4 to 0-6), completion of specified time in grade required (Navy)
1925	Officers:	If fail promotion: under 10 YOS, discharged with severance pay; over 10 YOS, retired as

TABLE 2.2 (cont'd.)

		follows: O-6, 56 YOA; O-5, 50 YOA; O-1 to O-4, 45 YOA (Marine Corps)
1926	Officers:	Navy age/grade changed to YOS/grade: O-6, 35 YOS; O-5, 28 YOS; O-4, 21 YOS (Navy)
1931	Officers:	O-3's, 45 YOA <u>and</u> 20 YOS, if fail promotion exam (Navy)
1934	Officers:	Marine Corps provisions same as Navy
1935	Officers:	O-2, 14 YOS; O-3, 21 YOS (Navy/Marine Corps)
1936	Officers:	O-4, 21 YOS; O-5, 28 YOS; if not on promotion list (Marine Corps)
1938	Officers:	Promotion by selection rather than age or service in grade. O-2 to O-4: if fail selection twice, retired (over 20 YOS), discharged with severance pay (under 20 YOS); O-5, O-6: if fail selection twice, retired (Navy/Marine Corps)
1941	Officers:	Army Vitalization Act. Inefficient officers discharged (under 7 YOS), retired (over 7 YOS) (Army)
1947	Officers:	Officer Personnel Act. Army/Air Force: Major General, 62 YOA. All other 60 YOA or not selected for promotion and: O-8, 35 YOS or 5 years in grade; O-6, O-7, 30 YOS or 5 years in grade; O-5, 28 YOS; O-4, 21 YOS; O-3, 14 YOS (severance pay); O-2, 7 YOS (severance pay). Navy/Marine Corps: O-7, not recommended for continuation after twice considered. All others, twice fail selection and O-6, 30 YOS: O-5, 26 YOS; O-4, 20 YOS; O-2, O-3, severance pay.
1948	Officers:	Show cause board, retired if over 15 YOS, otherwise discharged with severance pay
1959	Officers:	O-4, O-5 with least potential, retired early (Navy/Marine Corps)
1960	Officers:	O-5, O-6 not reaching expected potential, retired early (Army/Air Force)

62 for officers; 50 for enlisted) or pay grade to the voluntary retirement provisions.

- Prior to 1855, severance pay was used on occasion to compensate Army personnel discharged for the convenience of the government. In subsequent years severance pay has been used in lieu of retirement, particularly for officers in pay grades O-4 and under or with less than 10 yr of service. Initially, involuntary retirement was based on years of service or age. Prior to 1882 officers could be compelled to retire (at the cognizant Service Secretary's discretion) but nothing mandated such retirement. Since 1890, officers falling into the following categories would, at one time or another, by one service or another, be forced to retire or be discharged with severance pay:
  - Twice failing promotion
  - Nonselected/not promoted and reaching an age or years of service for grade
  - Identified by board or other action as "Class 'B'"; inefficient, unable to show cause, having least potential or not reaching expected potential.

These provisions have never been the same for all services. Note also that the involuntary statutory provisions have applied

only to officers (except for convenience of the government discharge severance pay in 1800 and 1811).

- b. The social and economic connotations of the nondisability retirement/severance legislation are, based solely on a chronological review, not clear-cut. As discussed in more detail in Section III of this report, the timing of the legislation is generally associated with major changes (buildups or reductions) in force levels surrounding war. During such periods, liberalizing the voluntary retirement provisions by reducing the required years of service and eliminating certain individuals/groups of individuals not needed/wanted by the military would appear to have greater social acceptance than might be found during other periods, say 20 yr after a war with no war on the horizon. In any case, the implications are that voluntary retirement should be based on years of service, and that involuntary retirement/separation of officers should be justified in some manner related to their performance (e.g., after being identified as inefficient, etc., or failing promotion).
- c. The management implications of the nondisability retirement legislation are:
  - Voluntary retirements will not, in themselves, provide the degree of management control desired. Some

form of mandatory egress must be present, particularly during a reduction in force.

- The flexibility available in managing the enlisted force through the process of administratively refusing to allow reenlistments (and thereby "forcing" retirements) has not been present in officer management tools.

2.8 In summary, the history of nondisability retirement legislation has youth and vigor overtones in the sense that self-elimination from the active force (voluntary retirement) has been made available based principally on length of service, mandatory retirement of older (60-64 yr of age) officers has been established, and removal of nonvigorous officers has occurred to the extent that inefficiency, lack of potential, and failure to be promoted are measures of vigor. On the other hand, the lack of legislative action to mandatorily eliminate enlisted personnel, the differences between officer and enlisted voluntary retirement provisions, and the differences among the services relative to mandatory officer retirement provisions indicate that nondisability retirement serves management objectives that are much broader in scope than those normally associated with youth and vigor arguments.

Legislatively Implied Descriptors

2.9 From the legislative history of military retirement described above, the following composite list of descriptors/measures of youth and vigor arises:

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<u>Descriptor</u>	<u>Values Appearing in Legislation</u>
Age	50, 60, 62, 64
Age vs. grade	0-7 64; 0-6 56; 0-5 50; 0-1 to 0-4 45
Service vs grade	0-8 35; 0-6, 7 30; 0-5 28; 0-4 21, 20; 0-3 14; 0-2 7
Length of service	45, 40, 30, 20, 16, 15
Nonselected/promoted	Twice fail
Screened out	Inefficient, potential, Class "B," retired if over: 7, 10, 20 yr of service, otherwise severance pay
Disabled	Physical; mental/moral; permanent; percent/temporary

2.10 Any youth and vigor definition and/or quantification methodology based on historical information must be able to address, at a minimum, these descriptors over the range shown for each while simultaneously explaining the variations between officer and enlisted force subsets and among the various services.

## AN ANALYTICAL APPROACH

2.11 The historical review of legislation provides some insight into potential descriptors and definitions of youth and vigor as applied to the armed forces. Additional insight may be achieved by addressing the issue in a more straightforward, analytical manner. Such an effort was undertaken by Presearch analysts; the results are described below. Note that many of the aspects of youth and vigor addressed through this approach do, in fact, appear in the historical analysis described above.

Context

2.12 The objective is to address youth and vigor in the context of its implications relative to the armed forces. For this reason, the definitions and quantification methodologies must be limited to those which potentially may enter into an evaluation of the ability of the armed forces to accomplish their required missions. The basic premise, then, is that youth and vigor and ability should be synonymous.

2.13 The ability to perform satisfactorily may be viewed at various levels of aggregation, such as total force, service, service component, officer/enlisted subset, occupational subset or individual. This ability may also be viewed relative to the type of attribute desired/required (e.g., physical, mental, moral) or in terms of the potential variances occurring, required, or desired over time (e.g., peacetime/wartime, present/future). Furthermore the ability may be addressed in terms of the duration it must be present (long-term/short-term, always/infrequently) or the environmental changes which might cause variations (e.g., stressful/nonstressful situations, at-sea/ashore, under fire/in rear areas). The ability may be stated in terms of either the quantitative (e.g., time until reaching exhaustion, missions before rest required, etc.) or qualitative (e.g., correct decisions under stress, innovative solutions found, etc.) aspects. Still again, the ability can be perceived as potentially having either a theoretical or practical existence (based on factors such as motivation, willingness to perform, etc.). Finally the ability may be stated (as alluded to above) as either required or desired.

Parameter Identification

2.14 Based on the above list of dimensions of ability/youth and vigor, the following list of parameters was developed as an

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initial attempt to identify potentially usable measures. (Note: combinations (e.g., age/years of service; age/grade, grade/time in grade) and various aggregations (e.g., individual, force/service average, average officer/enlisted) are also desired.)

<u>Parameter</u>	<u>Potentially Related to</u>
Age	Physical or mental ability; stamina, endurance, health, flexibility, adaptability, productivity. Potentially best used relative to a norm: as a percent of life expectancy, compared to median age of population or population subset (e.g., working males), etc.
Years of service	Experience; qualitative or quantitative ability; potentially a proxy for age.
Grade	Experience; qualitative or quantitative ability; duration and environment ability required/desired.
Time in grade	Experience; motivation.
Promotion opportunity	Motivation; willingness to perform.
Occupation	Environment; duration ability desired/required; nature of ability (mental, moral, physical).

Use of the Parameters

2.15 After developing two lists of potentially usable parameters (one based on a historical review, the other through an analytical approach), two alternatives were available:

- a. Systematically determine the manner in which ability/youth and vigor varies with each parameter or combination of parameters and identify or develop a methodology for quantifying required or desired levels of ability/youth and vigor. Develop a model to describe the

degree to which the actual, historical, or hypothetical levels of youth and vigor (as described by the values of the parameters) match the desired/ required levels.

b. Assume that, as inferred by the legislative history, the threshold of youthful and vigorous/nonyouthful and not vigorous was approached and crossed at certain points in history by certain subsets of the force. Identify these times, quantify the values of the parameters at such times for the subset of concern, evaluate the results and thus "derive" the definitions of and quantification techniques for youth and vigor.

2.16 It should be apparent that the level of effort and time to accomplish Alternative (a) above would far exceed that available during the tenure of the current Commission. It might reasonably be asked if such a systematic approach could, in fact, ever be satisfactorily completed. Therefore Alternative (b) was pursued as described below.

SOURCES SEARCHED

2.17 The potential success in quantifying historical youth and vigor levels is clearly related to the existence, accuracy and completeness of data for use in quantifying the parameters previously identified. Accordingly, a comprehensive search was undertaken to locate such data. The major libraries searched were:

- Library of Congress
- National Archives

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- Army Library (Pentagon)
- Department of Commerce
- Bureau of Census
- Department of Labor
- Civil Service Commission.

2.18 Major offices contacted and points of contact were:

- Office of the Assistant Secretary of Defense (OASD) (Manpower, Reserve Affairs and Logistics), DoD Actuary (K. DeSai)
- OASD (Comptroller), Management Information, Operations and Control Directorate (R. Haber)
- Department of the Army, Office of the Chief of Military History (H. Zeidlik)
- National Archives (S. Walker, Research Consultant; R. Wolfe, Military History Archivist; E. Coffee, Archivist)
- Defense Manpower Data Center (A. Sinaiko)
- Bureau of Naval Personnel, Personnel Statistics Branch (Pers 3C24a) (H. Demsko)
- Headquarters, U.S. Marine Corps, Manpower Planning, Programming and Budget Branch (C. Fox)
- Congressional Research Service (R. Goldrich and A. Farlow (retired))
- House Armed Services Committee, Subcommittee on Military Personnel (W. Hogan)
- House Armed Services Committee, Military Compensation Subcommittee (R. Spence)

- Senate Armed Services Committee, Manpower and Personnel Subcommittee (G. Travers).

## RESULTS

2.19 Certain pertinent information (e.g., number of military personnel on active duty (1789-1977), number of military personnel by pay grade (1958-1976), age distribution of military personnel (1948, 1950-1976), reenlistment rates (1950-1976)) is available in an aggregated form in Selected Manpower Statistics, published annually by OASD (Comptroller) (1969-1977) or OSD Directorate for Statistical Services (1958-1968). The DoD Actuary has chronological files containing much of this same information as well as information concerning pay rates, those personnel receiving retired pay, mortality data, etc., for the mid-1950s through the present. Examples of these data are shown in Section IV and Appendix B of this report. The Defense Manpower Data Center has ADP files (used, in part, to develop OASD (Comptroller) and DoD Actuary reports) constructed by aggregating information extracted from each Service's ADP system(s). Such files go back only to 1971.

2.20 Nonaggregated raw data are available in documents such as the Army Register (names, rank, date of enlistment of individual service members) or historical Department of Army Comptroller files (noncategorized, nonindexed files held by the National Archives) back to approximately 1900. Aggregating, standardizing and otherwise preparing such data for use would require considerable time and effort (conservatively estimated by one high official at hundreds of man-years).

2.21 Books, material submitted in conjunction with testimony at hearings concerning legislation, and previous studies/

commission reports contain sketchy data characterized as either nonpertinent to a youth and vigor argument (e.g., pay levels), point-in-time (e.g., 1 or 2 yr) or incomplete (e.g., address only certain pay grades, or one or two parameters). References to youth and vigor, when they appear, are in the form of statements (with little or no specific data provided as backup) or anecdotes. One such statement has been referenced in Section I. Others are:

a. In the hearings surrounding the Career Compensation Act of 1949, <sup>2/</sup> Mr. Keith S. McHugh, member of the Advisory Commission on Service Pay, stated in part:

... In the Commission's opinion the purpose of meeting the superannuation problem is basic to sound thinking with respect to a retirement program. All the services have compulsory retirement at a fixed age. One can hardly disagree that the services must be kept alert and vigorous if they are to perform successfully in critical times. They can scarcely be kept alert and vigorous and provide the kind of leadership to win wars unless service personnel are compelled to retire from active service before they are too old; this, in turn, cannot be accomplished unless appropriate retirement benefits are immediately available.

John L. Hoen, executive secretary, Advisory Committee on Service Pay, testified:

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<sup>2/</sup> The Army Library, Career Compensation Act 1949 Public Law 351, 81st Congress, H. R. 5007, Legislative History, Vol. 3. United States Government Printing Office, Washington, D.C., 1949.

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Mr. Chairman, the Hook Commission believed that both the pay scales and the retirement system of any organization should be designed to promote the effective employment of all personnel in the organization. Combined they serve a single purpose and are justified by assuring active and vital uniformed forces. A further reason for retirement pay is justice to the individual. Because of the nature of military service the mass of personnel must, of necessity, be relatively young people. For this reason the Commission has recommended a more liberal factor for computing retirement pay and a lower retirement age than is generally found true in industry.

Commander Donald L. Martineau, USN, included in his remarks:

Throughout the entire history of warfare, positions of command responsibility have always required vigorous physical and mental capacity. It has also been proven highly detrimental in any military organization to retain any officer who prematurely reaches the limit of his abilities and can no longer progress, but who otherwise advances under the military system merely by seniority. Despite these facts, both the Army and the Navy have at various times in the past been seriously reduced in effectiveness by having promotion systems based upon seniority alone. Such a system not only encourages incompetence, but has invariably resulted in almost hopeless promotion stagnation, and a drastic shake-up when faced with actual war.

Those conditions that existed for many years led to the development of a promotion system based upon a selection process. By this means, officers are promoted only if recommended by a statutory selection board.

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b. Mr. John J. Ford, staff director of the House of Representatives Committee on Armed Services, speaking before the committee on 10 July 1974, said in part:

Now, all the problems that you are having nowadays with the question of when you retire, and how you pay retired pay to military people, started because at that time you had absolute seniority as a sole means of promotion, you had finite limits on the numbers of officers in each grade; you had absolutely no provision for getting rid of anybody except by dying.

When the Civil War started the junior captain in the U.S. Navy had 42 years of service, and the average captain in the Army was in his fifties. Many of the majors in the Army were in their sixties and seventies. In fact, the commanding officer of the Army at that time was Gen. Winfield Scott who was 82 years old and 325 pounds and used a block and tackle to get up on his horse. He was pretty heavy and pretty pompous but still a very good general, by the way.

c. The background papers to the report of the Third Quadrennial Review of Military Compensation <sup>3/</sup> contain the following references:

The effect on the services of this lack of removal authority was pungently described shortly after the outbreak of the Civil War in a Senate debate on a military retirement bill:

MR. GRIMES: Mr. President, I think the Senate and the country have been taught a lesson within the past few months on

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3/ DoD, op. cit.

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this subject....The immense destruction of public property at Norfolk was occasioned more on account of the age and the weakness and the inability of the commanding officer who was upon your active list, than from any other reason; not that he has not been one of the most gallant and efficient officers of the naval service, but the time for his service has passed by, and the Government ought to have furnished a retired list on which he could have retired years ago, reputably and safely to himself and the country.

MR. WILSON: ....Why, sir, take the four regiments of artillery. Four of those colonels ought to be retired. Not one of those colonels, owing to their age or infirmities, or other causes, will be ordered into the field. Two of the lieutenant colonels are in the same condition, and some of the majors. Go to your other regiments and you will find worn out, sick, or disabled officers in high positions.

and:

Except for an 1855 statute that served a compulsory retirement purpose for Navy Officers, there were no provisions of law prior to 1861 that allowed either voluntary or involuntary retirement from active military service. The effect of this lack of retirement authority was described many years later in Congressional study of Army retirement:

The unsatisfactory personnel conditions in the Regular Army which prompted these repeated recommendations of the War Department that Congress provide some form of retirement for the Regular Army were emphasized during the extended field service required over the period 1812-1861. While the law provided a pension of one-half pay for disabled officers, there existed no provision for compulsory separation from

active service of old and disabled officers; there was no limit to active service save by dismissal or resignation of the officer. Thus, an officer could remain on active duty until death, despite incapacity due to old age, physical disability, etc. In consequence, many junior officers exercised commands in the field beyond their rank, the old and disabled officers who should have exercised these commands being left behind--often on leave--whenever field service was performed.

A discussion of the 1949 Advisory Commission on Service Pay (Hook Commission) is presented in Appendix C.

2.22 Data relevant to the need for a youthful and vigorous combat force are addressed in Appendix D. Ginzberg <sup>4/</sup> and Stouffer <sup>5/</sup> address certain aspects of youth and vigor. For example, combat performance of individuals in various age groups is described. The cohorts addressed in these references are largely (or in the case of Ginzberg, entirely) composed of new inductees. Although the implications are that older men are less effective than younger individuals, the results appear most pertinent to mobilization planning rather than retirement issues. Ginzberg states for example:

The Army might have decided to screen the overage group and to release only those who were clearly ineffective. But having decided that men over 37 were a liability, the Army found it easier to separate the entire group.

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<sup>4/</sup> E. Ginzberg, et al., The Ineffective Soldier, Columbia University Press, New York, 1959.

<sup>5/</sup> S. A. Stouffer, et al., The American Soldier to Combat and Its Aftermath, Princeton University Press, Princeton, New Jersey, 1950.

The fact that an older soldier was performing satisfactorily in a clerical assignment in the Zone of Interior was surely no guarantee that he would have the stamina to cope with an overseas assignment, especially in or near combat. And the Army kept its eyes focused on its combat mission. No one who recalls the "old man" of 40 in a barracks with 18- and 19-yr-olds will question the difficulties of mixing younger and older men in the same unit. The older the man, the more difficulty he encountered in meeting strenuous training and duty assignments. But if the Army had found it as necessary as our Allies did to conserve manpower, most of these men could have made the grade, despite their age, if appropriate adjustments had been made. It is conducive to neither individual nor group morale to have an 18-yr-old sergeant or a 20-yr-old lieutenant command a group composed of much older men. Effective group performance usually requires some limitation on the age range of its members and particularly in the age structure of superiors and subordinates.

## SUMMARY

2.23 In summary, the net findings of the search for quantifiable data relative to youth and vigor were:

- a. "Hard" data relevant to youth and vigor have not generally accompanied legislation.
- b. Prior to 1948, such data were apparently not collected or, as a minimum, not aggregated in a usable manner. Attempts to reconstruct such data are unlikely to be successful.
- c. Post-1948 data exist. For years earlier than about 1955 the data are sketchy. For 1955-1971 the data are increasingly more complete. For 1971 and forward, data are available in automated systems. The routinely produced aggregations of post-1971 data do not, however, fully

describe all the parameters potentially usable as measures of youth and vigor.

#### IMPLICATIONS OF FINDINGS

2.24 The implications of these findings are that youth and vigor have been and currently are addressed in generally nonquantifiable, subjective terms. There is not, nor has there ever been, a formal definition or quantification of youth and vigor. The intuitive aspects of youth and vigor are identifiable in the legislative history; more substantive aspects are not.

### III. HISTORICAL ANALYSIS

3.1 In this section military retirement/severance legislation is analyzed relative to the changes in the total force size occurring at the time the legislation was passed.

#### APPROACH

3.2 A plot of the total number of military personnel on active duty was developed for the period 1789-1977. The dates major nondisability retirement/severance laws were passed and the provisions of each law were noted on the plot and the resultant array analyzed to determine what patterns (if any) existed between force level changes and retirement/severance legislation.

#### Force Level Changes

3.3 The major changes in the number of military personnel on active duty are, naturally, associated with periods of war. The general pattern observed was:

- a. From a standing prewar active duty strength level of X, a war-related strength buildup to a peak, Y, occurs over a relatively short (2-4 yr) period. Y may be on the order of 3 to nearly 50 times X.
- b. From the war peak Y, the number of military personnel on active duty falls rapidly to a

postwar level of Z. The reduction occurs primarily in the first year or two after Y is reached and then at a slower pace throughout the remainder of the 4 years following the peak. Z may be on the order of 1.5 to nearly 6 times the prewar strength level X.

- c. The postwar active duty strength remains stable at Z or exhibits a small (typically 3% per year) growth until the next major strength buildup for war occurs.

#### Grouping of Legislation

3.4 Based on the above pattern, legislation was grouped relative to the proximity of the date the legislation was passed to the year an active duty strength peak occurred. The years characterized as immediately prior to or during a strength buildup for war and the associated peak-strength year are displayed in Table 3.1. Nondisability retirement/severance legislation is grouped into five categories in Table 3.2, based on the period during which the legislation was passed: immediately prior to or during a strength buildup, 1-4 years after strength peak (i.e., demobilization), 5-10, 11-15, or 16 or more years after strength peak. The characteristics of each group of legislation are described below.

#### GROUP CHARACTERISTICS

3.5 During force level buildups for war, voluntary retirement provisions were relaxed. First, voluntary provisions were introduced for officers (1861) where no such provision had previously been in effect. During subsequent force level buildups,

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TABLE 3.1

YEARS CHARACTERIZED AS "IMMEDIATELY PRIOR TO OR DURING STRENGTH BUILDUP" FOR WAR AND "PEAK STRENGTH" YEARS

War/Conflict	Immediately Prior to or During Strength Buildup	Peak Strength Year
War of 1812	1811-1814	1814
Mexican War	1845-1848	1848
Civil War	1861-1865	1865
Spanish-American War	1897-1898	1898
World War I	1916-1918	1918
World War II	1935-1945	1945
Korean Conflict	1950-1952	1952
Vietnam Conflict	1965-1968	1968

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TABLE 3.2  
NONDISABILITY RETIREMENT/SEVERANCE LEGISLATION GROUPED BY PROXIMITY TO STRENGTH PEAK

Year	Legislation Occurring Immediately Prior to or During Force Level Buildup for War	Involuntary Retirement/Severance Provisions
1811	Voluntary Retirement/Severance Provisions	
1811	Severance pay for Army enlisted personnel with over 5 YOS (For retention purposes).	--
1861	Officers: voluntary retirement at 40 YOS; Presidential discretion. Navy - 40 YOS or 62 yr of age (YOA) (first voluntary retirement law).	Navy officers: compulsory (Secretarial discretion) at 45 YOS or 60 YOA.
1862	--	Army/Marine Corps officers: same as 1861 Navy.
1916	Fleet reserve established for Navy/Marine Corps enlisted personnel; transfer at 16 YOS if eligible for honorary discharge, 20 YOS otherwise. (Previously 30 YOS and 50 YOA.)	Navy officers: 64 YOA or nonpromoted 0-6 (56 YOA), 0-5 (50 YOA), 0-4 (45 YOA).
1916	Army officers: reduced to 15 YOS; Navy officer: reduced to 7 YOS for 0-2, 14 YOS for 0-3.	Navy officers: 0-2 (17 YOS), 0-3 (21 YOS).
1916	--	Marine Corps officers: 0-4 (21 YOS), 0-5 (28 YOS).
1918	Navy/Marine Corps officers: 20 YOS (previously 30 YOS); promotion by selection.	Navy/Marine Corps officers; retirement by selection: 0-5 and above; two falls retired; 0-2 to 0-4; 0-2 to 0-4; two falls retired if over 20 YOS; severance pay if under 20 YOS.
1941	--	Army Vitalization Act: officers with under 7 YOS discharged, over 7 YOS retired.
1945	Transfer of Army enlisted personnel to Enlisted Reserve Corps at 20 YOS (previously retire at 30 YOS).	--
	Legislation Occurring 1-4 Yr After Strength Peak	
1815	--	Severance pay for Army officers discharged at convenience of the government
1899	Navy officers: no age or YOS requirement for 0-4 to 0-6; Navy enlisted personnel - 30 YOS and 50 YOA (1st voluntary provision for Navy enlisted).	Navy officers: up to specified number of 0-3 to 0-6 if not enough voluntary retirements.
1919	Army officers: disability retirees go on "unlimited" list-made space for more nondisability retirees.	Same as voluntary.
1920	--	Class "B" Army officers: retired if over 10 YOS, severance pay if under 10 YOS.
1922	--	Reduction in Army commissioned strength: under 10 YOS, severance pay, over 10 YOS retired.
1947	--	Officer Personnel Act: reduced mandatory to 60 YOA; set time in service versus grade points for those not selected for promotion.
1948	Army/Air Force officers: 20 YOS (previously 15 YOS).	Show Cause Board for Army/Air Force officers.

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T A B L E 3 . 2 (Cont)

Legislation Occurring 5-10 Yr After Strength Peak		
Year	Voluntary Retirement/Severance Provisions	Involuntary Retirement/Severance Provisions
1855	--	Navy officers: removal for other than physical disabilities.
1870	Army officers: 30 YOS, Presidential discretion (previously 40 YOS).	Severance pay for Army officers honorably discharged.
1873	Navy officers: 40 YOS and 62 YOA (previously or 62 YOA).	Navy officers: minimum of 62 YOA nonphysical disability retirement.
1906	Navy officers: 0-7 and up: 64 YOA or 1 yr in grade.	--
1907	Enlisted personnel: 30 YOS (standardized ~ previously 30 YOS and 50 YOA for Navy).	--
1908	Navy officers: 30 YOS (previously 40 YOS except 0-4 to 0-6 any time).	--
1925	Navy/Marine Corps enlisted: 20 YOS (for new enlistees. Previously 16 YOS).	--
1926	--	Navy officers: age in grade changed to YOS in grade: 0-6 (35 YOS), 0-5 (28 YOS), 0-4 (21 YOS): Marine Corps officers; under 10 YOS, severance pay; over 10 YOS: 0-6 (56 YOA), 0-5 (50 YOA), 0-1 to 0-4 (45 YOA).
1959	--	Navy Hump Bill: early retirement of 0-4, 0-5s with least potential.
1960	--	Army/Air Force: early retirement of 0-5, 0-6s not reaching expected potential.
Legislation Occurring 11-15 Yr After Strength Peak		
1878	Army officers: "limited" retired list increased to 400.	Same as voluntary.
1931	--	Navy officers: 0-3 45 YOA and 20 YOS and fall exam.
Legislation Occurring 16 Yr or More After Strength Peak		
1882	Army officers: 40 YOS (previously 30 YOS, Presidential discretion).	Army officers: 64 YOA (previously 60 YOA, Secretarial discretion) severance pay for "supernumeraries."
1883	Army officers: number of 40 YOS/64 YOA retirees unlimited.	Same as voluntary.
1885	Army/Marine Corps enlisted: 30 YOS (first voluntary retirement for enlisted).	--
1890	No pensions for any officer (short duration).	No pensions for any officer (short duration); severance pay for officers failing promotion.
1891	Army officers: "limited" list reduced to 350 but disability retirees shift to "unlimited" list at 64 YOA.	Same as voluntary.

the years of service required to retire voluntarily were progressively reduced for officer and/or enlisted personnel. During these same periods involuntary retirement provisions were introduced (1861, 1862) or refined to accommodate the removal of certain officers (e.g., those not selected for promotions (1916, 1935, 1936, 1938) or otherwise not deemed fit for continued service (1941)).

3.6 During the periods 1-4 yr after a strength peak, voluntary retirement provisions were modified to standardize the provisions among the services (1899, 1948) or to facilitate the retirement of officers (1899, 1919). Involuntary removal of officers, particularly Army officers, was accomplished through the use of various types of removal boards. Officers so removed with less than (typically) 10 yr of service were awarded severance pay.

3.7 The periods 5-10 yr after a strength peak were characterized by the standardization of voluntary retirement provisions and/or the modification of provisions to limit the premature retirement of certain groups of officers. During these periods, involuntary removal of excess/unwanted officers (primarily O-4s and above) was often necessary.

3.8 The periods 11-15 yr after a strength peak contained too few legislative events to provide a definite characterization. During the period 16 yr and more after the Civil War strength peak (the only such period occurring since the first nondisability retirement/severance law was passed), the trend was toward more restrictive voluntary and involuntary retirement provisions for officers. The enactment of the first voluntary retirement provisions for enlisted personnel during this period is contrary to what otherwise would be considered a period of increasing social dissatisfaction with the military retirement system.

SUMMARY

3.9 In general, nondisability retirement/severance legislation correlates with overall military force level management objectives. Initial reductions in force after a war are accompanied by/accomplished in part through the use of involuntary retirement laws. Voluntary retirement provisions are standardized during the same period. Once the initial size of the force is reduced to the desired level, the officer inventory is readjusted through the use of "hump" legislation. After roughly 10 yr, changes are less frequent and tend (until a force level buildup commences) toward a less liberal system.

3.10 The liberalization of voluntary retirement provisions and removal of officers by involuntary retirement that has occurred during force level buildups is counter to the objective of increasing the size of the force which exists at the time, but is consistent with the objective of preparing the force for war. The need for such legislation, even though progressively more liberal voluntary retirement provisions and increasingly specific involuntary retirement provisions have been in existence prior to the enactment of the legislation, highlights the lack of flexibility that historically has been available for managing the officer forces.

#### IV. RECENT VARIATIONS IN YOUTH AND VIGOR DESCRIPTORS

4.1 In this section, recent variations in youth and vigor descriptors are described and the implication of these variations discussed.

##### DESCRIPTORS REVIEWED

4.2 The descriptors reviewed included age of the armed force as a whole, age by pay grade, experience of the force as a whole, and experience by pay grade. In general, the data reviewed were obtained from the DoD Actuary and cover (at most) the years from 1949 to the present. Not all data were available in an aggregated form for all years.

##### Age of the Force

4.3 The age distribution of male military personnel as of 30 June 1954 through 30 June 1976 is shown in Table 4.1. The percent over 40 yr of age for each year is plotted on Figure 4.1. Starting from a level of 3.5% in 1954, the percent of male military personnel over 40 reached a peak of 9.5% in 1961, dropped to 5.7% in 1968 and has averaged about 6.7% since 1971.

4.4 In general, those individuals over 40 may be characterized as either officers in pay grades O-4 to O-10 or enlisted personnel in pay grades E-6 to E-9. At any point in time, however, the age range encountered in a given pay grade may be quite broad. The number of military personnel on active duty 30 June

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TABLE 4.1  
AGE DISTRIBUTION OF MALE MILITARY PERSONNEL\*  
(percent)

Attained Age	30 Jun 1954	30 Jun 1955	30 Jun 1956	30 Jun 1957	30 Jun 1958	30 Jun 1959	30 Jun 1960	30 Jun 1961	30 Jun 1962	30 Jun 1963	30 Jun 1964
17	1.9	2.8	3.0	2.3	2.0	1.9	2.5	2.2	1.7	1.8	1.8
18	4.5	6.4	7.0	6.5	5.4	5.5	5.7	6.5	5.6	5.1	4.6
19	7.3	9.4	10.0	10.2	9.1	8.4	8.8	9.7	9.5	8.8	7.8
20	11.1	10.4	11.0	10.8	10.1	9.2	9.3	9.5	9.7	10.7	9.8
21	15.7	11.8	10.0	9.4	8.5	8.0	7.7	7.6	8.2	8.8	10.7
22	12.8	9.8	9.1	9.3	7.4	6.9	6.3	5.7	6.7	6.6	8.3
23	9.4	7.9	7.0	8.3	9.1	8.2	6.5	5.6	7.2	6.5	7.0
24	6.7	6.1	5.2	4.9	6.9	7.2	6.9	6.2	6.6	7.0	6.2
25	4.7	4.8	4.3	4.1	3.7	4.0	4.1	4.3	4.7	5.1	4.5
26	3.0	3.8	3.8	3.4	3.3	3.3	3.3	3.4	3.7	3.3	3.3
27	2.1	2.8	3.1	3.1	3.1	3.1	3.0	3.0	3.1	2.8	2.8
28	1.8	2.1	2.6	2.8	3.0	3.1	2.9	2.8	2.5	2.6	2.6
29	1.7	1.8	1.9	2.2	2.7	3.1	3.0	2.8	2.4	2.4	2.5
30	1.7	1.8	1.8	1.7	2.2	2.7	3.0	3.0	2.4	2.4	2.3
31	1.6	1.8	1.8	1.7	1.9	2.1	2.5	2.8	2.6	2.3	2.2
32	1.7	1.8	1.8	1.7	1.8	1.9	2.1	2.5	2.6	2.6	2.4
33	1.8	1.8	1.8	1.8	1.8	1.8	1.9	2.2	2.3	2.5	2.4
34	1.6	1.8	1.9	1.7	1.8	1.9	1.8	1.8	1.9	2.1	2.4
35	1.5	1.7	1.9	1.8	1.8	1.8	1.9	1.8	1.6	1.9	2.1
36	1.3	1.5	1.7	1.8	1.9	1.9	1.8	1.8	1.5	1.6	1.8
37	1.0	1.4	1.5	1.7	1.9	2.0	1.8	1.8	1.6	1.5	1.5
38	0.9	1.2	1.4	1.5	1.8	2.0	1.9	1.7	1.5	1.5	1.3
39	0.7	1.0	1.2	1.4	1.6	1.8	1.9	1.8	1.4	1.3	1.3
40 - 44	a/	a/	a/	a/	a/	a/	6.3	6.4	5.8	5.5	5.0
45 - 49	a/	a/	a/	a/	a/	a/	2.2	2.2	2.3	2.4	2.5
50 and Over	—	—	—	—	—	—	0.9	0.9	0.9	0.9	0.9
Total	3.5	4.3	5.2	5.9	7.2	8.2	9.4	9.5	9.0	8.8	8.4
Over 40	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Total	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

a/ Source data incomplete for ages 40 and over.

\* Department of Defense OASD (Comptroller), Directorate for Management Information Operations and Control, 6 April 1977, Table P25.2.

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TABLE 4.1 (Cont)

Attained Age	30 Jun 1965	30 Jun 1966	30 Jun 1967	30 Jun 1968	30 Jun 1969	30 Jun 1970	30 Jun 1971	30 Jun 1972	30 Jun 1973	30 Jun 1974*	30 Jun 1975	30 Jun 1976
17	1.6	1.2	0.9	0.8	1.1	1.7	2.0	1.9	2.0	2.1	1.7	1.8
18	5.2	5.0	4.0	3.5	3.8	3.5	4.4	4.7	5.5	5.8	5.9	5.6
19	7.2	11.4	9.4	7.6	8.5	8.4	8.2	8.2	8.7	9.1	9.4	9.4
20	9.0	12.8	16.7	16.1	14.1	12.2	11.8	10.0	10.8	9.7	9.8	9.8
21	10.7	10.9	13.6	16.4	14.9	13.3	12.5	10.0	10.1	9.9	8.9	8.8
22	9.5	8.7	8.5	8.5	11.4	10.7	10.2	8.6	7.6	7.9	7.8	7.3
23	7.6	6.7	6.5	6.4	6.8	8.5	7.6	7.3	6.1	5.8	6.1	6.0
24	5.7	4.8	5.0	5.0	5.0	5.0	5.6	5.7	5.1	4.8	4.9	5.1
25	4.0	3.6	3.9	4.2	4.1	3.8	3.8	4.9	4.5	4.4	4.3	4.4
26	3.1	2.8	3.0	3.1	3.2	2.9	2.9	3.0	4.0	3.9	4.0	3.9
27	2.7	2.3	2.2	2.2	2.2	2.5	2.5	2.6	2.8	3.7	3.6	3.7
28	2.5	2.2	1.9	1.8	1.9	2.0	2.2	2.4	2.4	2.4	3.5	3.4
29	2.5	2.1	1.9	1.7	1.6	1.7	1.9	2.5	2.3	2.3	2.3	3.4
30	2.3	2.1	1.8	1.7	1.6	1.6	1.8	2.1	2.4	2.3	2.2	2.3
31	2.2	2.0	1.8	1.8	1.6	1.6	1.8	2.2	2.2	2.4	2.3	2.2
32	2.2	2.0	1.7	1.8	1.7	1.7	1.9	2.1	2.1	2.2	2.4	2.2
33	2.3	2.0	1.7	1.8	1.6	1.7	2.0	2.1	2.1	2.1	2.2	2.4
34	2.4	2.0	1.7	1.7	1.6	1.8	2.0	2.3	2.1	2.1	2.2	2.2
35	2.5	2.1	1.7	1.7	1.6	1.7	2.0	2.3	2.3	2.2	2.2	2.2
36	2.2	2.1	1.8	1.8	1.6	1.7	1.9	2.3	2.3	2.3	2.2	2.2
37	1.8	1.8	1.8	1.8	1.5	1.7	1.8	2.2	2.2	2.2	2.1	2.0
38	1.4	1.3	1.4	1.6	1.5	1.6	1.6	1.9	1.9	2.0	1.9	1.8
39	1.2	1.0	1.1	1.3	1.3	1.4	1.4	1.6	1.6	1.6	1.6	1.5
40 - 44	4.6	3.9	3.2	2.9	3.3	4.2	3.9	4.8	4.7	4.6	4.5	4.5
45 - 49	2.6	2.3	2.0	1.9	1.6	2.0	1.5	1.5	1.5	1.6	1.5	1.5
50 & Over	1.0	0.9	0.8	0.9	0.9	1.1	0.8	0.8	0.7	0.6	0.5	0.4
Total Over 40	8.2	7.1	6.0	5.7	5.8	7.3	6.2	7.1	6.9	6.8	6.5	6.4
Total	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

\* = Revised based on an extract of Enlisted and Officer Master Personnel files provided by the Military Services.

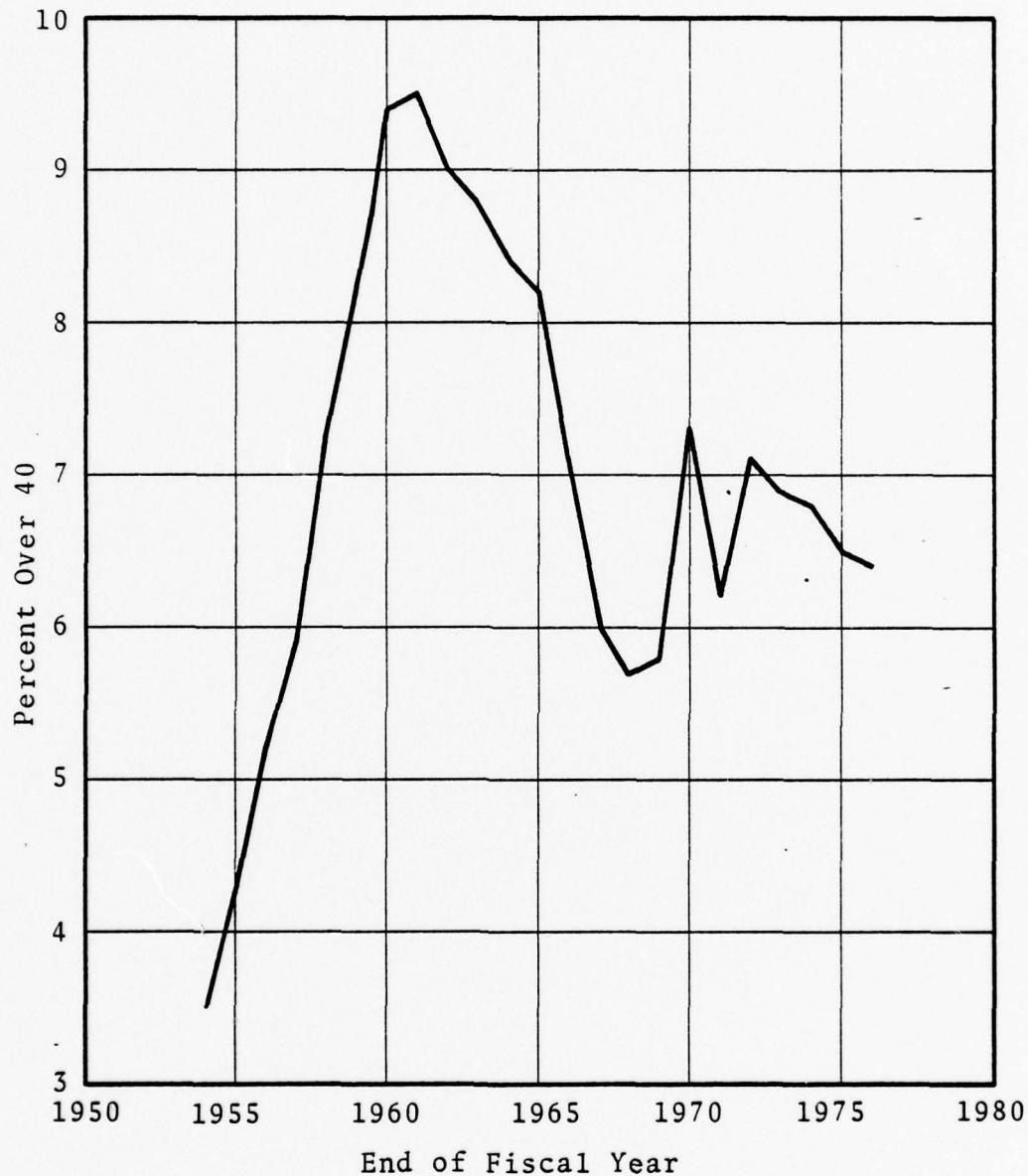


FIGURE 4.1  
PERCENT OF MALE MILITARY PERSONNEL OVER AGE 40  
(1954-1976)

1975 is broken out by pay grade and age in Table 4.2. The percent distributions for selected officer and enlisted pay grades (calculated from Table 4.2) are plotted in Figures 4.2 and 4.3. The range of ages encountered and percentile profiles for the plotted pay grades are displayed in Table 4.3.

#### Experience of the Force

4.5 The average years of Active Federal Military Service for military personnel on active duty as of 30 June for selected years (1949-1976) are displayed in Table 4.4 and plotted in Figure 4.4. For the years shown, the maximum average years of experience encountered for officers was 11.92 (1961) and the minimum 8.64 (1953), a difference of 3.28 yr of service. Similarly, for enlisted personnel the maximum encountered was 6.33 (1961) and the minimum 3.34 (1953), a difference of 2.99 yr of service. These variations have not been uniformly distributed by pay grade as may be seen in Table 4.5 (Average Years of Service for Pay Purposes for Military Personnel on Active Duty 30 June 1957-1973, by Pay Grade) and Figure 4.5, in which select pay grades are plotted using the data in Table 4.5.

4.6 Variations in the average pay grade attained for a given years of service have also occurred, as may be seen in Table 4.6 and Figures 4.6 and 4.7. For example, in the period 1957-1974, the average pay grade for commissioned officers with 10 yr of service for pay purposes varied from a low of 2.6 (1958) to a high of 3.5 (1971). Similarly, the average pay grade for enlisted personnel with 10 yr of service ranged from a low of 4.9 in 1964 to a high of 5.7 four years later. This type of variation may be further seen in reviewing the division points for promotion to pay grades E-2 to E-9, as shown in Table 4.7.

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TABLE 4.2

NUMBER OF MILITARY PERSONNEL ON ACTIVE DUTY 30 JUNE 1975 BY PAY GRADE AND AGE\*

DEPARTMENT OF DEFENSE																							
OFFICERS AND ENLISTED OFFICERS		OFFICER PAY GRADES																					
AGE	TOTAL	0-10	0-9	0-8	0-7	0-6	0-5	0-4	0-3	0-2	0-1	4-6	4-3	4-2	4-1								
17	6,619																						
18	68,818	1																					
19	175,964	2																					
20	214,839	51										1	6										
21	205,422	236										157		2	75								
22	179,435	3,868										30	3,666		26	166							
23	156,459	10,019										14	8,439	6,955	92	151							
24	114,981	13,616										46	4,892	8,426	100	66							
25	96,616	15,402											639	10,466	4,295	334	88						
26	89,402	17,603											4,817	18,598	2,388	473	127						
27	81,257	16,586											14	9,309	6,866	1,903	2	172					
28	74,669	19,085											176	13,464	3,185	1,625	27	217					
29	62,003	17,335											617	13,221	1,850	974	64	198					
30	46,488	13,589											1	1,278	10,281	1,010	35	163					
31	45,468	13,330											5	1,782	9,976	698	39	159					
32	48,305	13,458											15	2,477	9,643	522	56	206					
33	48,106	12,336											76	3,681	7,311	459	106	628					
34	46,538	10,889											186	6,628	4,519	337	192	162					
35	44,280	10,991											2	261	6,886	3,867	187	17	206	768	136		
36	44,275	16,726											3	438	6,567	2,285	240	95	406	670	101		
37	44,447	10,955											3	697	6,687	1,931	213	29	577	621	92		
38	42,496	9,764											11	1,553	5,585	1,333	128	21	522	452	59		
39	36,799	9,896											49	2,978	6,063	992	64	14	519	288	56		
40	29,698	8,682											126	4,687	2,953	693	6	93	653	207	23		
41	26,531	8,516											292	6,687	2,398	673	23	5	343	282	16		
42	18,806	7,563											3	513	4,356	1,787	295	14	2	129	317	15	
43	16,587	6,961											6	1,856	3,776	1,295	209	10	1	131	267	79	
44	13,573	5,806											8	1,551	2,674	979	168	7	167	211	53		
45	11,926	4,357											126	4,687	2,953	693	6	93	653	207	23		
46	9,287	3,396											1	56	1,831	1,559	535	6	2	145	156	6	
47	7,145	3,515											15	1,594	1,159	358	39	1	1	125	123	37	
48	6,627	2,189											2	14	69	1,863	656	100	27	2	79	79	11
49	3,350	1,674											3	23	68	878	453	136	16	1	56	38	6
50	2,723	1,567											6	46	879	376	93	2	1	39	26	11	
51	2,275	1,408	1	11	61	69	762	375	63	18			11	38	12	5							
52	1,651	1,864	14	49	43	59	596	279	39	18			14	26	12	6							
53	1,366	866	2	14	49	30	666	197	21	3			1	23	15	3	1						
54	1,117	756	7	19	67	17	621	179	16	3			1	20	7								
55	693	495	6	16	63	13	278	111	7					21	6								
56	449	352	7	9	26	8	168	91	6					16	1								
57	389	236	3	16	20	5	121	55	2					13	1								
58	216	152	5	8	9	2	77	34	4					12									
59	142	93	6	1	7	1	67	10						16	1								
60	155	76	2	3	8		36	15	1					1	10								
ALL Z	2,117,405	292,424	35	120	439	585	14,797	33,261	54,567	96,638	41,920	36,876	1,624	5,100	8,697	2,597							
AVERAGE AGE	26.5	33.1	56.1	54.8	52.7	49.3	47.3	42.6	36.9	38.7	26.6	24.7	44.7	39.4	33.8	38.2							

ENLISTED PAY GRADES										
TOTAL, AGE, ENLISTED		E-9	E-8	E-7	E-6	E-5	E-4	E-3	E-2	E-1
17	6,619			1		7	103	579	5,729	
18	68,818	1	1	7	206	12,571	46,889	76,294	38,797	
19	175,964									
20	214,839	3	14	1,985	46,532	78,616	66,895	25,843		
21	205,422	3	16	18,283	76,576	68,728	35,683	15,927		
22	179,435	1	8	158	21,252	88,219	45,430	19,697	9,322	
23	156,459	2	12	868	29,521	72,489	26,934	11,167	5,445	
24	114,981	1	6	2,871	38,530	42,529	15,098	6,769	3,459	
25	96,616	1	38	5,634	32,607	27,056	9,172	4,359	1,967	
26	81,799	77	8,708	36,230	18,664	6,888	2,875	1,153		
27	62,671	156	11,661	31,940	11,470	4,208	2,864	772		
28	59,381	1	2	599	13,920	28,217	7,591	3,079	1,539	476
29	44,666	3	1,290	24,014	21,853	4,961	2,119	990	270	
30	32,895	1	13	1,983	12,103	13,927	3,833	1,166	566	281
31	32,538	70	3,324	13,766	12,809	2,880	700	656	135	
32	36,467	6	239	9,515	16,030	10,630	1,430	610	295	96
33	35,770	27	546	7,556	17,806	9,769	1,689	670	236	65
34	33,721	92	1,229	9,239	15,407	6,905	799	349	266	75
35	33,297	162	1,772	15,475	11,661	5,684	572	229	138	45
36	33,562	209	2,386	12,766	9,261	4,261	127	51	6	3
37	32,672	633	3,822	15,629	13,605	3,680	309	55	19	5
38	31,150	601	3,998	12,159	11,689	2,810	268	63	12	6
39	25,703	3,475	10,512	8,797	2,083	1,733	30	9	4	
40	29,498	751	3,197	8,612	6,323	1,493	131	19	9	1
41	16,815	668	2,730	6,659	4,469	971	81	16	7	3
42	11,263	501	2,475	6,571	2,580	550	62	7	3	2
43	9,566	1,204	2,276	3,871	1,745	421	42	6	3	1
44	7,760	1,332	1,955	2,979	1,164	300	28	7	3	1
45	6,463	1,450	1,706	2,193	866	215	25	3	2	3
46	6,491	1,272	1,282	1,522	662	131	13	6	1	2
47	3,630	1,837	827	1,138	499	113	11	1	3	1
48	2,430	596	568	732	365	76	6	5	1	1
49	1,676	619	356	538	291	59	12	2		
50	1,156	363	253	351	161	43	3	2		
51	867	266	256	185	24	2				
52	587	103	125	188	58	21				
53	522	176	123	194	59	9				
54	361	127	77	118	34	11				
55	198	66	35	78	21	5	1			
56	97	25	37	13	4					
57	73	16	12	38	10	5				
58	66	17	19	27	3	2				
59	49	8	11	25	5					
60	79	10	17	26	9</					

P R E S E A R C H   I N C O R P O R A T E D

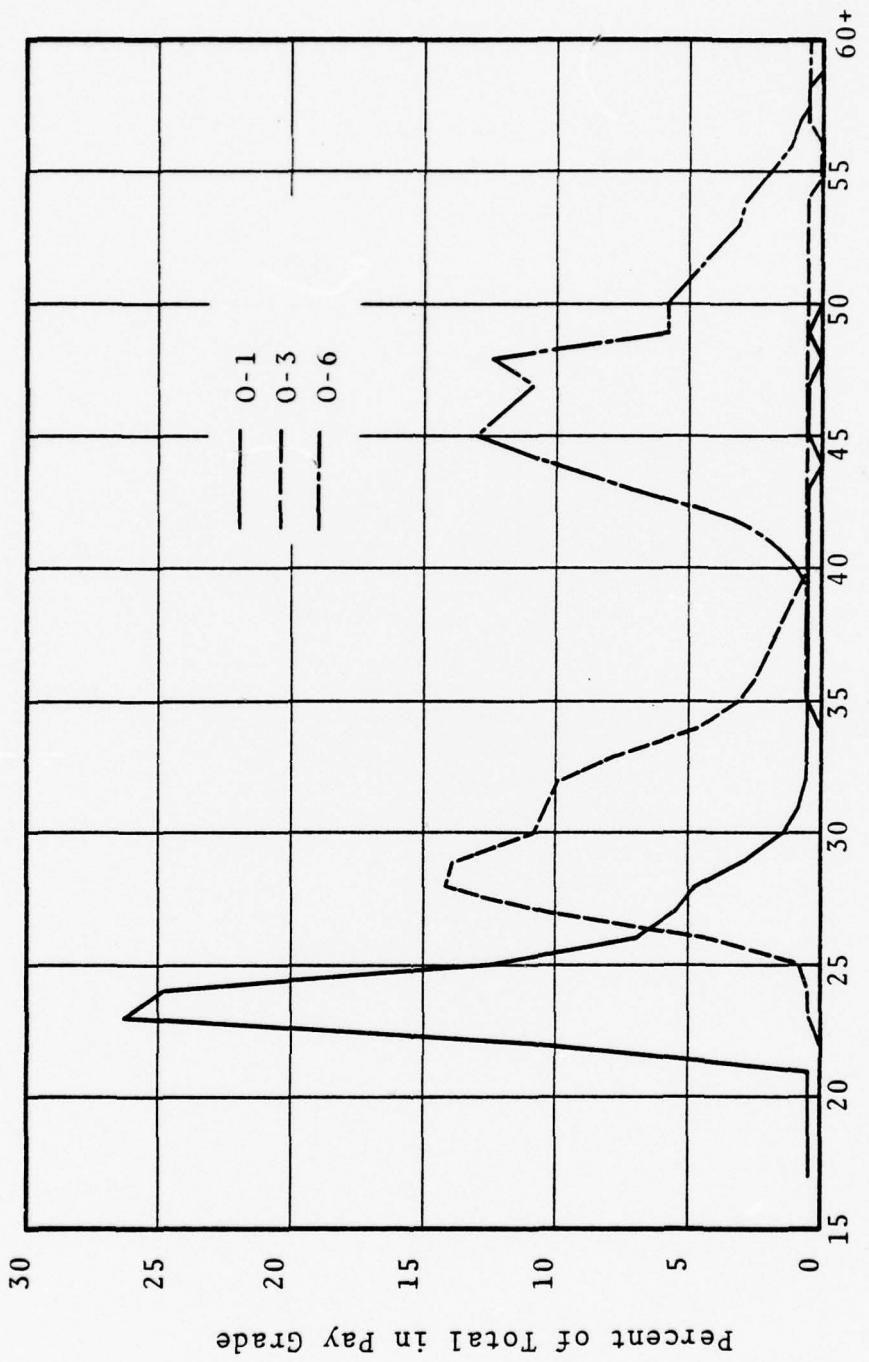


FIGURE 4.2  
DISTRIBUTION OF OFFICER MILITARY PERSONNEL ON ACTIVE DUTY BY AGE  
FOR SELECTED PAY GRADES, 30 JUNE 1975

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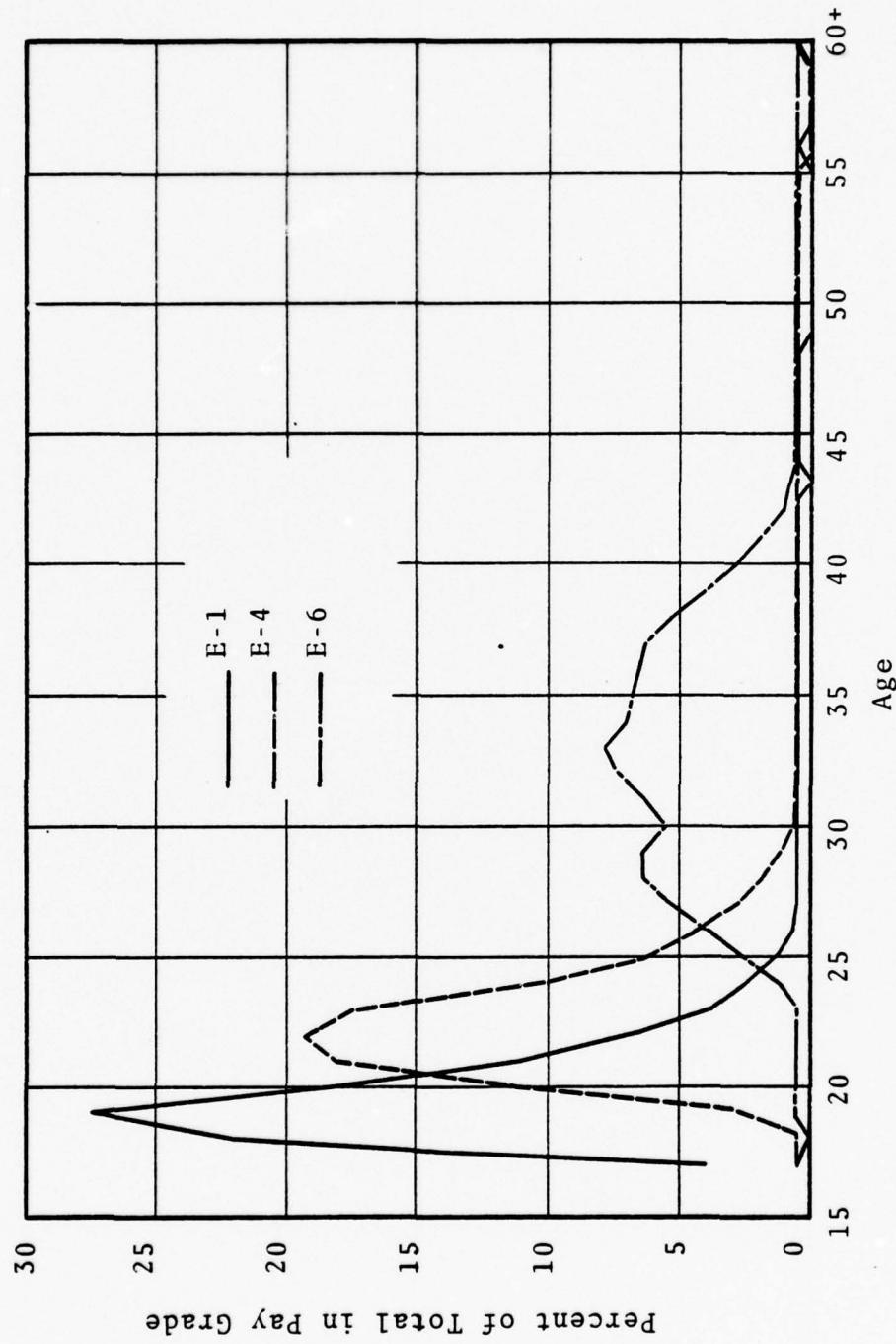


FIGURE 4.3

DISTRIBUTION OF ENLISTED MILITARY PERSONNEL ON ACTIVE DUTY BY AGE FOR SELECTED PAY GRADES, 30 JUNE 1975

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TABLE 4.3  
 AGE OF MILITARY PERSONNEL ON ACTIVE DUTY  
 30 JUNE 1975 FOR SELECTED PAY GRADES

Pay Grade	0-1	0-3	0-6	E-1	E-4	E-6
Range (yr)	18-49	23-58	35-60+	17-48	17-55	17-60+
$X_{10}$ =	21.9	26.5	42.5	17.3	19.6	26.3
$X_{25}$ =	22.5	27.7	44.0	18.0	20.6	28.7
$X_{50}$ =	23.5	29.6	46.0	18.9	21.9	32.5
$X_{75}$ =	25.0	32.0	49.2	20.3	23.5	36.0
$X_{90}$ =	27.5	34.8	52.4	22.0	25.7	38.8
$X_{90} - X_{10}$ =	5.6	8.3	9.9	4.7	6.1	12.5
$X_{75} - X_{25}$ =	2.5	4.3	5.2	2.3	2.9	7.3

Legend:  $X_{10}$  = 10th percentile (in years)

$X_{25}$  = lower quartile or 25th percentile

$X_{50}$  = median or 50th percentile

$X_{75}$  = upper quartile or 75th percentile

$X_{90}$  = 90th percentile

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TABLE 4.4

AVERAGE YEARS OF ACTIVE FEDERAL MILITARY SERVICE  
FOR MILITARY PERSONNEL ON ACTIVE DUTY  
30 JUNE 1949-1976\*

As of 30 June	Average Years of Active Federal Military Service		
	Officer	Enlisted	Age
1976	10.55	5.77	6.42
1975	10.37	5.81	6.44
1974	10.29	5.93	6.54
1973	10.06	5.95	6.54
1972	9.92	6.05	6.61
1971	9.41	5.54	6.07
1970	8.87	5.17	5.66
1969	9.02	4.70	5.23
1968	9.39	4.71	5.26
1967	9.76	4.93	5.49
1966	10.44	5.27	5.85
1965	10.65	6.27	6.83
1964	11.25	6.03	6.69
1963	11.02	6.07	6.69
1962	11.10	5.83	6.48
1961	11.92	6.33	7.04
1960	11.76	6.32	7.02
1958	10.64	5.22	5.90
1956	9.60	4.59	5.22
1955	9.23	4.15	4.76
1954	9.10	3.61	4.20
1953	8.64	3.34	3.90
1949	10.18	3.61	4.38

\* Extracted from or computed based on OASD (M&RA) Actuary Data:  
"Estimated Number of Military Personnel on Active Duty, 30  
June 19\_\_\_\_ by Year of Active Federal Military Service" for years  
shown.

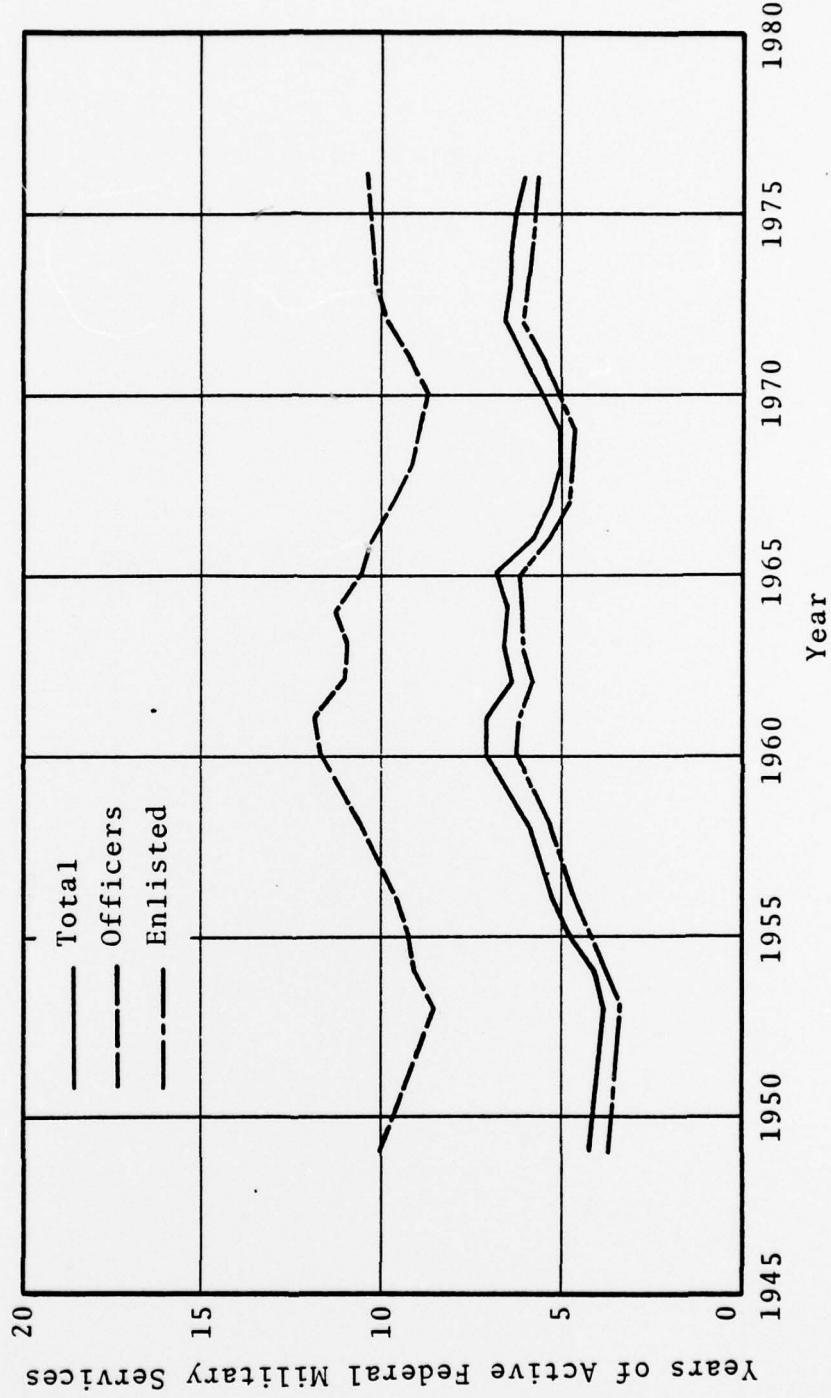


FIGURE 4.4

AVERAGE YEARS OF ACTIVE FEDERAL MILITARY SERVICE FOR MILITARY PERSONNEL ON ACTIVE DUTY, 30 JUNE 1949-1976

## PRESEARCH INCORPORATED

TABLE 4.5

AVERAGE YEARS OF SERVICE FOR PAY PURPOSES FOR MILITARY PERSONNEL  
ON ACTIVE DUTY, 30 JUNE 1957-1973, BY PAY GRADE\*

PAY GRADE	DEPARTMENT OF DEFENSE																
	1957	1958	1959	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973
O-10	29.92	29.99	30.00	30.00	30.00	29.99	29.96	29.83	29.94	29.95	29.97	29.92	29.94	29.97	30.00	29.91	
O-9	29.69	29.85	29.96	29.82	29.69	29.66	29.42	29.46	29.55	29.66	29.71	29.76	29.83	29.82	29.90	29.91	29.88
O-8	28.41	28.96	29.18	28.90	29.00	28.97	28.78	28.96	29.09	29.17	29.18	29.34	29.49	29.61	29.76	29.74	29.66
O-7	26.78	27.27	27.39	27.43	27.58	27.56	27.34	27.79	27.92	27.96	28.09	28.27	28.59	28.51	28.78	28.63	28.44
O-6	22.31	23.14	23.55	23.83	23.98	24.15	24.61	24.99	25.55	25.87	26.33	26.76	27.18	27.14	27.26	27.09	26.27
O-5	18.48	19.44	20.05	20.62	21.05	21.37	22.87	22.86	22.96	23.06	22.82	22.47	22.13	21.05	20.96	20.92	20.70
O-4	16.64	17.32	17.94	18.60	18.93	19.00	19.17	18.92	18.55	17.46	16.26	15.63	15.36	14.76	14.82	15.04	15.87
O-3	12.78	13.05	13.27	13.54	12.74	11.80	11.38	10.96	10.74	10.07	8.85	8.26	7.93	7.36	7.16	7.72	8.12
O-2	5.10	5.20	5.35	5.84	5.36	5.37	5.19	4.49	4.27	4.04	3.91	3.86	3.41	3.20	3.22	3.68	4.13
O-1	2.28	2.37	2.41	2.57	2.70	2.04	2.08	1.85	2.81	2.63	2.29	1.81	1.73	1.56	1.74	1.75	2.09
COM'DN OFCERS	10.96	11.68	12.19	12.75	12.64	12.14	12.14	11.86	11.78	11.56	10.72	10.19	10.07	9.78	10.03	10.60	10.74
W-6	24.23	23.97	23.99	24.10	24.28	24.26	24.94	24.94	25.12	25.35	25.38	25.81	26.11	26.00	25.73	25.46	25.15
W-5	20.68	20.39	20.33	20.40	20.87	20.94	21.55	21.57	21.77	21.60	20.74	20.55	19.85	18.96	19.09	20.03	20.23
W-4	16.70	17.16	17.42	17.77	14.01	17.98	17.90	18.88	16.30	15.29	14.53	12.94	12.67	13.28	14.27	14.45	13.91
W-3	13.87	14.44	15.29	15.17	13.99	12.88	12.97	11.47	9.56	12.91	11.64	10.83	6.62	4.92	6.48	5.44	9.43
W-2 NT OFCERS	17.92	18.20	18.50	19.90	19.21	18.99	19.51	18.88	18.73	18.32	16.15	14.89	13.26	13.08	14.68	15.45	15.77
ALL OFFICERS	11.39	12.04	12.59	13.13	13.81	12.55	12.50	12.20	12.03	11.89	11.04	10.50	10.30	9.94	10.34	10.93	11.07
E-9	0.	19.69	20.27	19.97	19.88	20.40	20.93	21.52	22.29	22.82	22.97	23.76	24.23	24.50	24.59	24.67	24.70
E-8	0.	18.23	18.32	18.55	18.74	15.25	19.65	20.84	20.59	20.76	20.51	21.09	21.12	21.19	21.40	21.46	21.39
E-7	15.92	16.79	17.17	17.49	17.78	17.76	17.94	18.17	18.60	18.42	17.94	18.05	17.81	17.82	18.04	18.28	18.42
E-6	11.99	12.82	13.57	14.12	14.62	14.50	14.65	14.88	15.05	14.54	13.71	13.64	13.29	13.28	13.79	14.06	14.31
E-5	8.24	8.76	9.36	9.95	10.32	10.11	10.30	10.56	10.72	9.77	8.18	7.00	6.45	6.39	6.72	7.52	7.71
E-4	4.13	4.71	5.06	5.37	5.52	5.19	5.19	5.17	5.12	4.18	3.86	2.75	2.64	2.58	2.66	2.88	3.21
E-3	2.42	2.62	2.75	2.73	2.56	2.44	2.27	2.29	2.28	1.89	1.63	1.71	1.64	1.58	1.64	1.68	1.85
E-2	1.43	1.54	1.42	1.34	1.16	1.10	1.20	1.08	1.18	0.88	1.05	0.86	0.91	0.94	0.94	1.00	0.98
E-1	0.98	0.94	0.89	0.81	0.88	0.84	0.77	0.73	0.71	0.73	0.70	0.63	0.66	0.72	0.69	0.75	0.75
ALL ENLISTED	5.10	5.77	6.15	6.39	6.55	6.24	6.29	6.33	6.47	5.55	5.11	6.95	4.95	5.32	5.71	6.29	6.18
ALL PERSONNEL	5.08	6.55	6.97	7.26	7.37	7.81	7.87	7.87	7.18	6.27	5.79	5.60	5.93	6.35	6.97	6.88	

\* CANNOT BE USED TO DETERMINE AVERAGE BASIC PAY.  
PERSONNEL WITH MORE THAN 30 YEARS OF SERVICE ARE COUNTED AS 30 IN DETERMINING THE AVERAGE.

\* OASD(M&RA)  
Actuarial Consultants  
May 12, 1975  
(1,894)

P R E S E A R C H I N C O R P O R A T E D

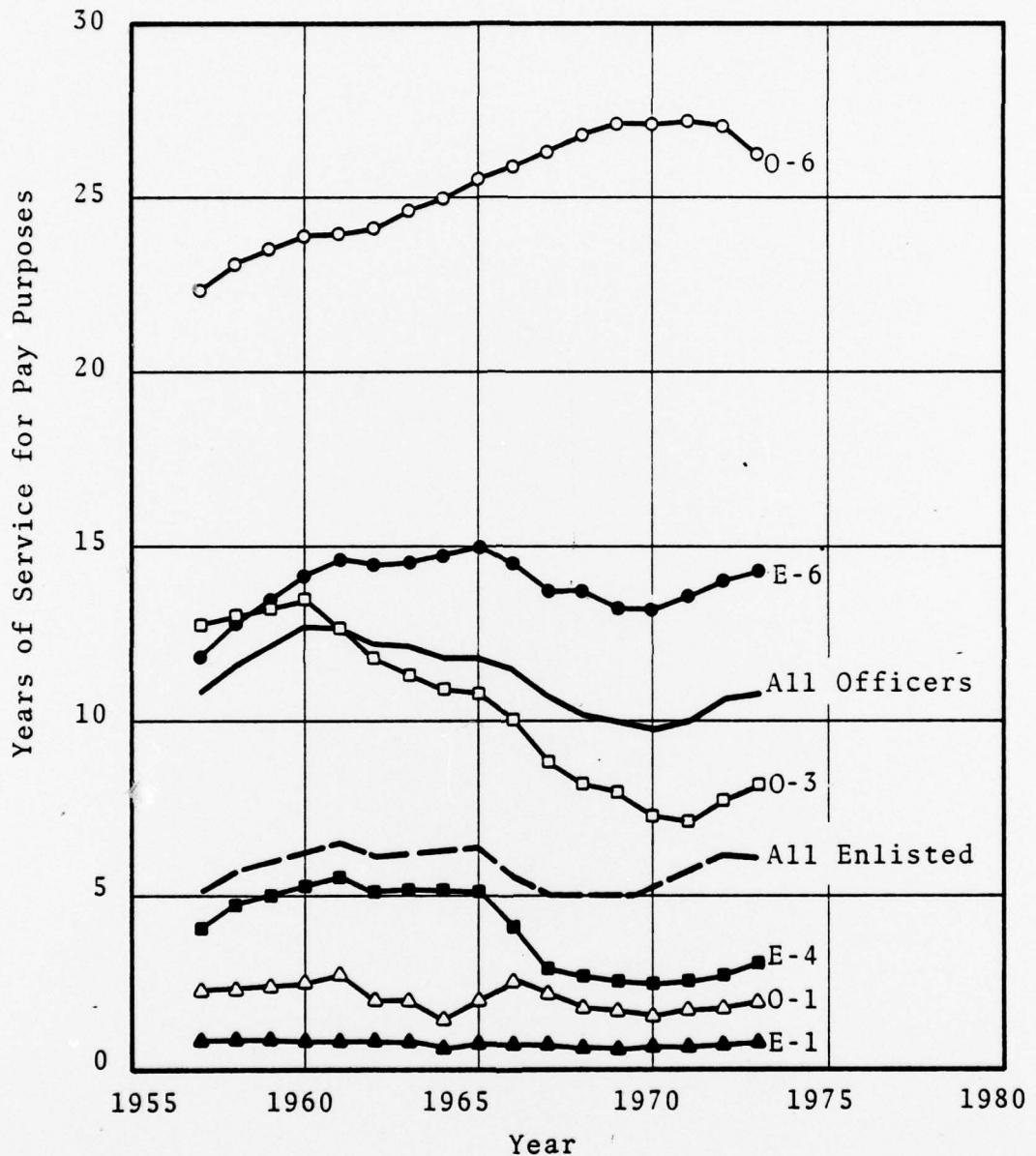


FIGURE 4.5  
AVERAGE YEARS OF SERVICE FOR PAY PURPOSES  
FOR SELECTED PAY GRADES, 1957-1973

## RESEARCH INCORPORATED

TABLE 4.6  
AVERAGE PAY GRADE FOR MILITARY ON ACTIVE DUTY 30 JUNE 1957-1974,  
BY YEARS OF SERVICE FOR PAY PURPOSES\*  
Department of Defense

COMMISSIONED OFFICERS																		
YRS SVC	1957	1958	1959	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974
0	1.2	1.1	1.0	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.0	1.0	1.1	1.1	1.1	1.1
1	1.3	1.2	1.2	1.2	1.3	1.2	1.2	1.2	1.3	1.3	1.3	1.3	1.4	1.5	1.4	1.3	1.2	1.1
2	1.4	1.3	1.3	1.3	1.4	1.3	1.3	1.3	1.4	1.4	1.4	1.4	1.5	1.6	1.5	1.4	1.3	1.2
3	1.5	1.4	1.4	1.4	1.5	1.4	1.4	1.4	1.5	1.5	1.5	1.5	1.6	1.7	1.6	1.5	1.4	1.3
4	1.6	1.5	1.5	1.5	1.6	1.5	1.5	1.5	1.6	1.6	1.6	1.6	1.7	1.8	1.7	1.6	1.5	1.4
5	1.7	1.6	1.6	1.6	1.7	1.6	1.6	1.6	1.7	1.7	1.7	1.7	1.8	1.9	1.8	1.7	1.6	1.5
6	1.8	1.7	1.7	1.7	1.8	1.7	1.7	1.7	1.8	1.8	1.8	1.8	1.9	2.0	1.9	1.8	1.7	1.6
7	1.9	1.8	1.8	1.8	1.9	1.8	1.8	1.8	1.9	1.9	1.9	1.9	2.0	2.1	2.0	1.9	1.8	1.7
8	2.0	1.9	1.9	1.9	2.0	1.9	1.9	1.9	2.0	2.0	2.0	2.0	2.1	2.2	2.1	2.0	1.9	1.8
9	2.1	2.0	2.0	2.0	2.1	2.0	2.0	2.0	2.1	2.1	2.1	2.1	2.2	2.3	2.2	2.1	2.0	1.9
10	2.2	2.1	2.1	2.1	2.2	2.1	2.1	2.1	2.2	2.2	2.2	2.2	2.3	2.4	2.3	2.2	2.1	2.0
11	2.3	2.2	2.2	2.2	2.3	2.2	2.2	2.2	2.3	2.3	2.3	2.3	2.4	2.5	2.4	2.3	2.2	2.1
12	2.4	2.3	2.3	2.3	2.4	2.3	2.3	2.3	2.4	2.4	2.4	2.4	2.5	2.6	2.5	2.4	2.3	2.2
13	2.5	2.4	2.4	2.4	2.5	2.4	2.4	2.4	2.5	2.5	2.5	2.5	2.6	2.7	2.6	2.5	2.4	2.3
14	2.6	2.5	2.5	2.5	2.6	2.5	2.5	2.5	2.6	2.6	2.6	2.6	2.7	2.8	2.7	2.6	2.5	2.4
15	2.7	2.6	2.6	2.6	2.7	2.6	2.6	2.6	2.7	2.7	2.7	2.7	2.8	2.9	2.8	2.7	2.6	2.5
16	2.8	2.7	2.7	2.7	2.8	2.7	2.7	2.7	2.8	2.8	2.8	2.8	2.9	3.0	2.9	2.8	2.7	2.6
17	2.9	2.8	2.8	2.8	2.9	2.8	2.8	2.8	2.9	2.9	2.9	2.9	3.0	3.1	3.0	2.9	2.8	2.7
18	3.0	2.9	2.9	2.9	3.0	2.9	2.9	2.9	3.0	3.0	3.0	3.0	3.1	3.2	3.1	3.0	2.9	2.8
19	3.1	3.0	3.0	3.0	3.1	3.0	3.0	3.0	3.1	3.1	3.1	3.1	3.2	3.3	3.2	3.1	3.0	2.9
20	3.2	3.1	3.1	3.1	3.2	3.1	3.1	3.1	3.2	3.2	3.2	3.2	3.3	3.4	3.3	3.2	3.1	3.0
21	3.3	3.2	3.2	3.2	3.3	3.2	3.2	3.2	3.3	3.3	3.3	3.3	3.4	3.5	3.4	3.3	3.2	3.1
22	3.4	3.3	3.3	3.3	3.4	3.3	3.3	3.3	3.4	3.4	3.4	3.4	3.5	3.6	3.5	3.4	3.3	3.2
23	3.5	3.4	3.4	3.4	3.5	3.4	3.4	3.4	3.5	3.5	3.5	3.5	3.6	3.7	3.6	3.5	3.4	3.3
24	3.6	3.5	3.5	3.5	3.6	3.5	3.5	3.5	3.6	3.6	3.6	3.6	3.7	3.8	3.7	3.6	3.5	3.4
25	3.7	3.6	3.6	3.6	3.7	3.6	3.6	3.6	3.7	3.7	3.7	3.7	3.8	3.9	3.8	3.7	3.6	3.5
26	3.8	3.7	3.7	3.7	3.8	3.7	3.7	3.7	3.8	3.8	3.8	3.8	3.9	4.0	3.9	3.8	3.7	3.6
27	3.9	3.8	3.8	3.8	3.9	3.8	3.8	3.8	3.9	3.9	3.9	3.9	4.0	4.1	4.0	3.9	3.8	3.7
28	4.0	3.9	3.9	3.9	4.0	3.9	3.9	3.9	4.0	4.0	4.0	4.0	4.1	4.2	4.1	4.0	3.9	3.8
29	4.1	4.0	4.0	4.0	4.1	4.0	4.0	4.0	4.1	4.1	4.1	4.1	4.2	4.3	4.2	4.1	4.0	3.9
30*	4.2	4.1	4.1	4.1	4.2	4.1	4.1	4.1	4.2	4.2	4.2	4.2	4.3	4.4	4.3	4.2	4.1	4.0
ALL	3.0	2.9	2.9	2.9	3.0	2.9	2.9	2.9	3.0	3.0	3.0	3.0	3.1	3.2	3.1	3.0	2.9	2.8

\* OASD(M&RA)  
Actuarial Consultant  
May 21, 1975  
(1,701)

## RESEARCH INCORPORATED

TABLE 4.6 (Cont.)

AVERAGE PAY GRADE FNP MILITARY PERSONNEL ON ACTIVE DUTY JUNE 30, 1957-1974, BY YEARS OF SERVICE FOR PAY PURPOSES

 DEPARTMENT OF DEFENSE  
 ENLISTED PERSONNEL

YPS	1957	1959	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974
0	1.6	1.9	1.9	1.9	1.8	1.9	1.8	1.8	1.9	2.2	1.9	1.9	2.1	2.0	2.0	1.8	1.7
1	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9	3.0	3.0	3.0	3.4	3.4	3.4	3.3	2.8	3.0
2	3.2	3.2	3.3	3.4	3.4	3.4	3.4	3.3	3.5	3.7	3.6	3.9	4.0	3.9	3.7	3.6	3.6
3	3.6	3.4	3.4	3.6	3.7	3.6	3.6	3.6	3.7	4.0	4.0	4.2	4.2	4.3	4.1	4.1	4.1
4	3.9	3.7	3.7	3.7	3.9	4.0	4.0	3.9	4.2	4.3	4.4	4.5	4.6	4.6	4.5	4.4	4.4
5	4.1	4.0	4.0	4.0	4.1	4.3	4.3	4.2	4.4	4.5	4.5	4.7	4.8	4.8	4.8	4.7	4.6
6	4.3	4.3	4.2	4.2	4.2	4.4	4.4	4.4	4.5	4.5	4.5	4.9	5.0	5.0	4.9	4.7	4.7
7	4.6	4.7	4.5	4.4	4.4	4.4	4.5	4.5	4.6	4.6	4.6	5.0	5.0	5.2	5.1	5.0	4.9
8	5.1	4.9	4.9	4.7	4.6	4.6	4.6	4.6	4.7	4.7	5.0	5.2	5.3	5.3	5.2	5.2	5.2
9	5.2	5.1	4.9	4.9	4.8	4.8	4.8	4.8	4.8	5.0	5.3	5.4	5.4	5.4	5.4	5.3	5.3
10	5.3	5.3	5.0	5.0	5.0	5.0	5.0	5.0	5.1	5.4	5.4	5.5	5.7	5.6	5.6	5.5	5.5
11	5.5	5.5	5.4	5.4	5.2	5.2	5.1	5.1	5.2	5.4	5.4	5.6	5.7	5.7	5.7	5.7	5.6
12	5.6	5.5	5.4	5.4	5.3	5.3	5.3	5.3	5.2	5.4	5.4	5.6	5.6	5.9	5.8	5.8	5.8
13	5.9	5.7	5.6	5.6	5.6	5.6	5.6	5.5	5.5	5.5	5.7	5.7	5.9	5.9	6.0	6.0	6.0
14	6.1	5.4	5.4	5.6	5.7	5.7	5.7	5.6	5.6	5.6	5.8	5.8	5.9	6.0	6.1	6.1	6.1
15	6.1	6.0	5.9	5.8	5.7	5.9	5.9	5.8	5.7	5.9	5.9	5.9	5.9	6.0	6.1	6.1	6.2
16	6.3	6.2	6.1	5.9	5.9	6.0	6.0	6.0	5.9	5.9	5.9	6.1	6.0	6.2	6.1	6.2	6.3
17	6.4	6.4	6.2	6.1	6.0	6.1	6.1	6.1	6.1	6.2	6.2	6.3	6.2	6.3	6.3	6.4	6.4
18	6.5	6.5	6.5	6.3	6.2	6.2	6.1	6.1	6.2	6.3	6.4	6.3	6.3	6.4	6.4	6.4	6.5
19	6.6	6.5	6.5	6.4	6.4	6.3	6.3	6.2	6.2	6.4	6.5	6.5	6.6	6.6	6.5	6.5	6.5
20	6.5	6.6	6.7	6.6	6.6	6.5	6.5	6.5	6.5	6.7	6.7	6.8	6.7	6.8	6.7	6.7	6.7
21	6.6	6.7	6.7	6.7	6.5	6.5	6.7	6.7	6.6	6.7	6.8	6.9	7.0	7.0	6.9	6.9	6.9
22	6.7	6.8	6.8	6.8	7.0	7.0	6.9	6.8	6.8	7.0	7.1	7.1	7.1	7.1	7.0	7.1	7.1
23	6.7	6.7	6.6	6.6	6.9	6.9	7.1	7.1	7.0	7.0	7.1	7.1	7.2	7.3	7.3	7.2	7.4
24	6.6	6.7	6.9	6.9	7.0	7.1	7.3	7.3	7.2	7.2	7.2	7.3	7.3	7.3	7.5	7.5	7.5
25	6.7	6.7	6.9	7.0	7.1	7.2	7.3	7.4	7.4	7.4	7.5	7.5	7.5	7.5	7.6	7.6	7.6
26	6.4	6.7	6.6	6.6	7.0	7.1	7.2	7.3	7.4	7.5	7.6	7.6	7.6	7.6	7.7	7.8	7.9
27	6.7	6.7	6.6	6.9	7.1	7.3	7.4	7.4	7.5	7.5	7.6	7.7	7.7	7.7	7.8	7.9	8.0
28	6.7	6.7	6.6	6.6	6.9	7.0	7.4	7.4	7.5	7.6	7.7	7.8	7.9	7.8	7.8	7.9	8.1
29	6.9	6.8	6.9	6.8	7.1	7.1	7.4	7.4	7.3	7.6	7.7	7.8	7.9	7.9	7.9	7.9	8.1
30+	6.7	6.7	6.7	6.7	6.5	6.6	6.8	7.3	7.3	7.4	7.5	7.5	7.5	7.7	8.0	8.0	8.0
ALL	1.7	1.8	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9

PRESSEARCH INCORPORATED

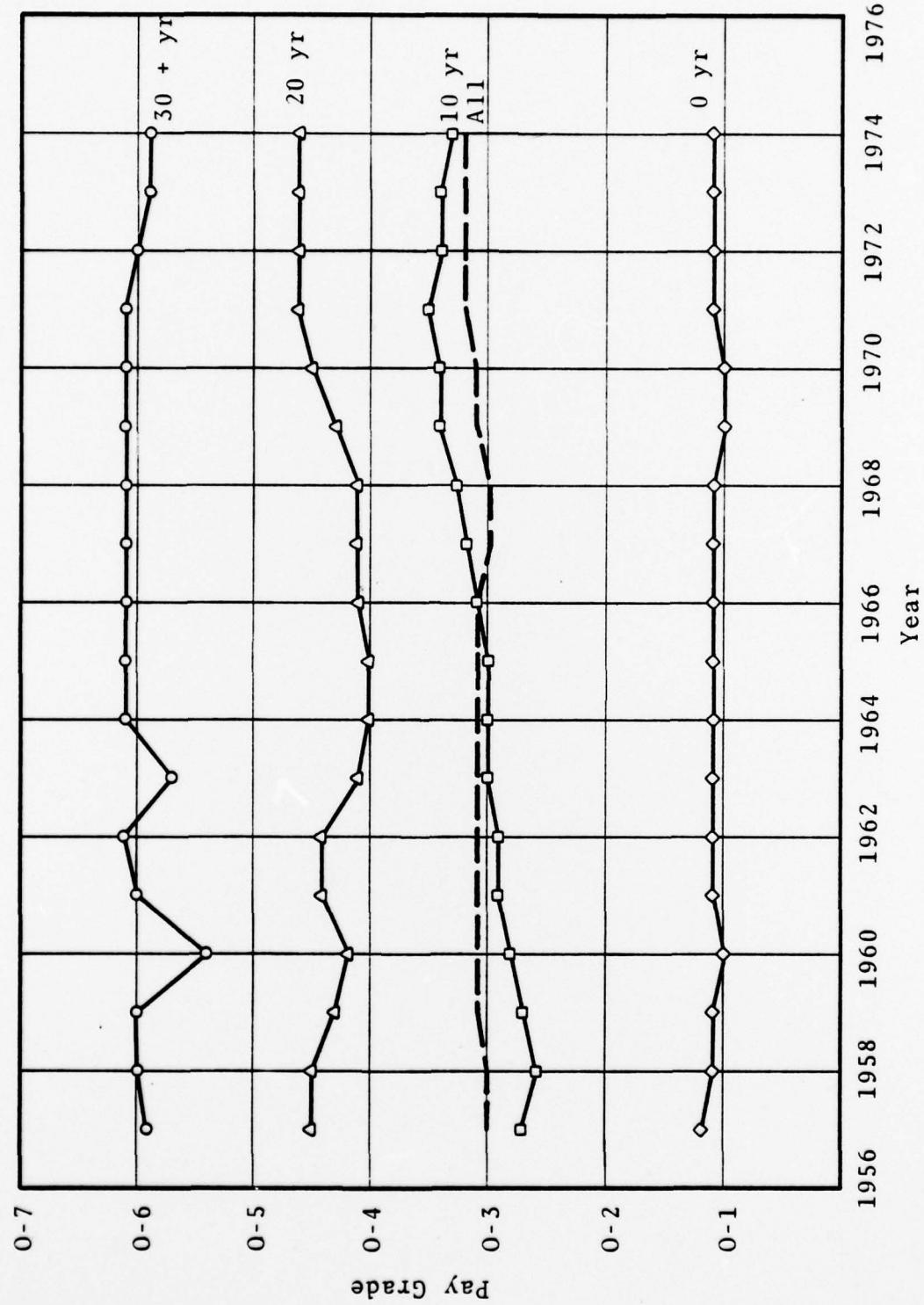


FIGURE 4.6

AVERAGE PAY GRADE FOR MILITARY OFFICERS BY YEARS OF SERVICE FOR PAY PURPOSES, 1957-1974

P R E S E A R C H   I N C O R P O R A T E D

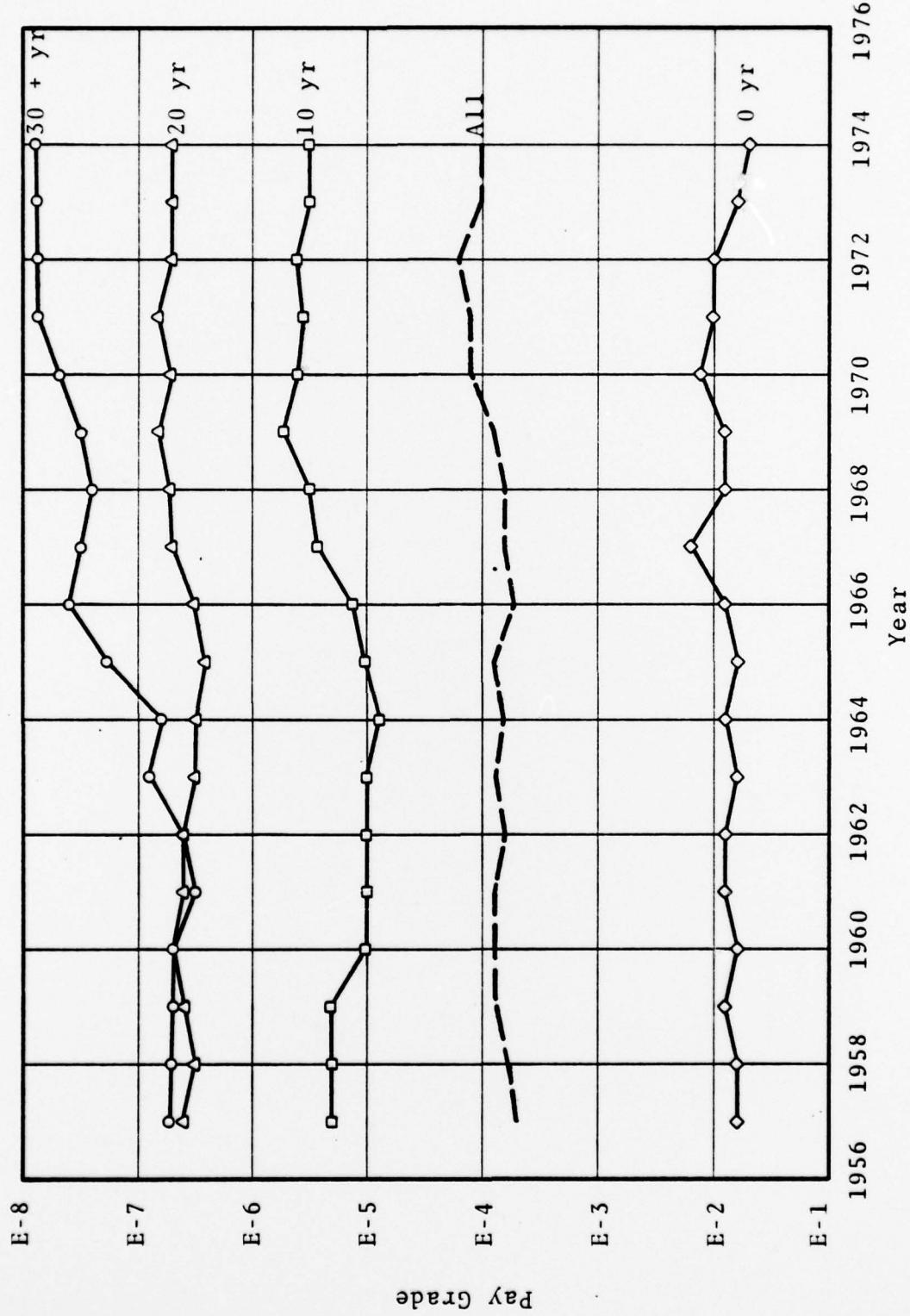


FIGURE 4.7  
AVERAGE PAY GRADE FOR ENLISTED MILITARY PERSONNEL BY YEARS OF SERVICE FOR PAY PURPOSES, 1957-1974

## P R E S E A R C H I N C O R P O R A T E D

TABLE 4.7  
DIVISION POINTS FOR PROMOTION TO SPECIFIED ENLISTED GRADES, 1949-1969\*  
Department of Defense

Promo- tion to June Grade <u>1949</u>	30 June <u>1953</u>	30 June <u>1956</u>	30 June <u>1958</u>	30 June <u>1960</u>	30 June <u>1962</u>	30 June <u>1965</u>	30 June <u>1967</u>	30 June <u>1969</u>
E-2 3.5 mos.	4.6 mos.	4.6 mos.	4.2 mos.	5.0 mos.	3.3 mos.	4.9 mos.	3.3 mos.	5.3 mos.
E-3 17.7	15.9	15.3	13.6	15.0	12.2	13.7	9.8	10.5
E-4 38.7	29.9	32.1	34.1	39.5	30.0	33.7	20.5	19.0
E-5 67.1	57.8	62.8	65.9	86.9	79.9	79.1	47.9	38.0
E-6 90.9	102.4	121.3	131.9	158.4	161.3	167.0	146.7	124.4
E-7 114.7	140.6	168.4	184.7	209.8	214.7	224.1	212.0	205.1
E-8 -	-	-	-	249.7	247.2	262.7	256.7	256.0
E-9 -	-	-	-	302.4	275.3	290.4	299.6	308.3

## Definition:

A division point for promotion to a specified grade is a number of months of active service such that, for each and every person who had been promoted to this grade (or higher) and had less than this amount of service, there was another person on active duty with more than this amount of service who had not been promoted to this grade (or higher).

\* OASD(M&RA)  
Actuarial Consultant  
December 15, 1970

IMPLICATIONS

4.7 If the levels of youth and vigor present in the armed forces over the past two and one half or three decades have been considered to be "satisfactory," then the definition of youth and vigor being applied must encompass a significant range of average experience, percent of personnel over 40, age in grade, years of service for grade and so forth. If such a case exists, then arguments in support of or opposed to changes in the military retirement/compensation systems based on the potential impact relative to the current values of youth and vigor descriptors are credible only if the expected change will result in values outside the ranges observed since the end of World War II.

V. CONCLUSIONS AND RECOMMENDATIONS

5.1 This section contains the conclusions drawn from the analyses and findings. Associated recommendations are made, as appropriate.

CONCLUSIONS

5.2 In Section I a quotation from the appendices of the Report of the First Quadrennial Review of Military Compensation was referenced. The quotation continues as follows: "This is not to say that youth and vigor is a panacea for the military organization or that the organization is optimally structured." <sup>1/</sup> Our findings support this statement.

5.3 Neither the present military retirement system nor any specific change to it can be fully supported or opposed solely on the basis of a youth and vigor argument.

5.4 The relative importance of the need for youth and vigor as a factor in historical changes to the military retirement system cannot be formally quantified. Many of the effects of the changes (e.g., accommodating the removal, voluntarily or otherwise, of military personnel from active duty) may be

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<sup>1/</sup> Department of Defense, Modernizing Military Pay: Report of the First Quadrennial Review of Military Compensation, Volume V, The Military Estate Program (appendices), Appendix III, pp. III-4, 5, 15 January 1969.

addressed in terms of broader management objectives: specifically, control of the total size of the force.

5.5 The argument that the current military retirement system "works" is supportable in the sense that the system, together with the rest of the military compensation package, has conceivably (although not necessarily demonstrably) limited fluctuations in certain youth and vigor parameters. This is arguably a "self-fulfilling prophesy" effect since youth and vigor have never been formally defined (hence the force existing at any given time may arbitrarily be characterized as youthful and vigorous) and since force management objectives implicitly reflect the composition of the existing force, while such composition is in turn a result of previous force management actions.

5.6 The present military retirement and compensation systems have not "worked" in the sense that:

- Significant fluctuations in youth and vigor descriptors have occurred
- "Hump" legislation has been required
- Pertinent trends in the occupational composition of the force and in morbidity parameters have not been reflected in the systems
- The system has not been immune from economic and social attack.

5.7 The ability of the current military compensation and retirement systems to prevent the necessity for a "housecleaning" of the officer corps coincident with a full mobilization has not been tested. There is, however, the potential that such an action will be required/desired should full mobilization occur.

This potential stems from the lame-duck provisions imbedded in the officer retirement rules. For example, officers are promoted to O-5 at (typically) the 16-17 yr of service point. Once promoted, O-5s may not be mandatorily removed from active duty (except for disability or factors such as gross negligence) until the 26-28 yr of service point, depending on the individual service. Similar provisions exist for other officer paygrades.

#### RECOMMENDATIONS

5.8 Additional flexibility should be incorporated into the military retirement and compensation package to:

- Accommodate removal of officers for good cause prior to the mandatory retirement point
- Accommodate the retention on active duty of officers who should be continued past the mandatory service in grade points notwithstanding the fact that they will not be promoted.

The manner in which officers falling into one of the above categories should be identified and the means by which their removal or continuation should be effected should be the subject of further study. One such aspect is the inferred contract issue and the use of a "grandfather clause" to exclude those presently in the system. This is discussed in Appendix E.

5.9 It should be anticipated that youth and vigor will continue to be an issue relative to force management objectives and associated retirement and compensation provisions. Accordingly, it is recommended that further study of youth and vigor be undertaken with the objectives of:

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- Developing a serviceable definition of youth and vigor
- Developing methodologies to quantify youth and vigor levels and requirements
- Determining and evaluating the potential impact on youth and vigor levels and requirements of factors such as demographic changes in the population of the U.S. and the ability to recruit and retain individuals with the desired/required characteristics
- Addressing youth and vigor as one of a number of interrelated management objectives and not as an isolated issue.